

# Coverage Improvement Followup

## FINAL REPORT

This evaluation reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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Darlene A. Moul  
Decennial Statistical  
Studies Division

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## EXECUTIVE SUMMARY

Coverage Improvement Followup, an operation developed for Census 2000 that followed Nonresponse Followup, was designed to improve coverage of housing units in the mailout/mailback, update/leave, and urban update/leave areas. There were 121,894,831 housing units in these mailback areas that were potentially eligible for Coverage Improvement Followup; the workload (including Puerto Rico) consisted of 8,854,304 housing units. Most of this workload consisted of units classified as vacant or delete in Nonresponse Followup; exceptions included units that were identified as vacant or delete in two census operations, units identified as seasonal vacants, and units identified as “undeliverable as addressed.” Additional components of the Coverage Improvement Followup universe included:

- Adds from the new construction operation
- Adds from the Update/Leave and Urban Update/Leave operations
- Blank mail returns
- Lost mail returns
- Non-respondents in Panels 7, 8, and 9 of the Response Mode and Incentive Experiment
- February 2000 and April 2000 Delivery Sequence File adds
- Adds from the Local Update of Census Addresses 1998 and 1999 Appeals process
- Hialeah, Florida Nonresponse Followup units
- Miscellaneous units: POP99s (housing units identified as occupied during Nonresponse Followup that do not have a population count) and Residual Nonresponse Followup units

The Coverage Improvement Followup operation was conducted in three separate waves as groups of local census offices completed Nonresponse Followup.

- Wave 1 included 342 local census offices that started the Coverage Improvement Followup operation on June 26 and finished on July 26.
- Wave 2 included 175 local census offices that started the Coverage Improvement Followup operation on July 10 and finished on August 10.
- Wave 3 included three local census offices that started the Coverage Improvement Followup operation on July 30 and finished on August 23.

The aim of this operational summary is to develop a profile of the Coverage Improvement Followup units that will provide Census Managers with critical information needed for planning the 2010 Census. For this executive summary, the term “workload” refers to the housing units contacted in Coverage Improvement Followup and “returns” refers to the questionnaires completed during Coverage Improvement Followup. The key findings follow.

- The Coverage Improvement Followup operation followed-up 3.9 million vacant units and 2.6 million delete units. Approximately 21.9 percent of the vacant units were converted to occupied and 24.6 percent of the deletes were converted to occupied; these converted units resulted in a net gain of approximately 3.1 million people. Approximately 18.1 percent of the deletes were converted to vacant.

In the 1990 field followup operation Vacant/Delete/Movers Check, we followed-up 7.3 million vacant units and 2.9 million deleted units. Approximately 8.7 percent of the vacants were converted to occupied and 6.4 percent of the deletes were converted to occupied; approximately 5.3 percent of the deletes were converted to vacant. Compared to the 2000 Census, the 1990 vacant and delete workloads were larger and the conversion rates were lower; these differences were the result of changes in the universe rules for inclusion (i.e., there were different rules for including/excluding vacant and delete units).

- At the end of Coverage Improvement Follow, approximately 26.8 percent of the units were occupied, 43.4 percent were vacant and 29.7 percent were deletes; only 542 of the 8.9 million housing units had an undetermined status at the end of the operation.
- More than 88 percent of the lost mail returns and 81.2 percent of the blank mail returns yielded valid housing units.
- Approximately 52.9 percent of the new construction adds and 58.5 percent of the Delivery Sequence File adds were deleted; approximately 63.6 percent of the LUCA Appeals adds were ultimately deleted which confirms our findings in earlier operations that these addresses were not valid addresses.
- Although 74.1 percent of the Coverage Improvement Followup returns were completed by a proxy respondent, more than three-fourths of the proxy interviews were for vacant units. Approximately 18.1 percent of the proxy interviews were for occupied housing units.
- Approximately 5.3 percent of the returns were partial interviews; 70.4 percent of the partial interviews were also proxy interviews. Approximately 26.6 percent of the partial interviews were with a household member.
- Approximately 94,000 Coverage Improvement Followup households refused to participate in the Census.
- There were 76,762 occupied units with no population count, which implies the housing units size may have had to be imputed.
- There were 5.3 million people enumerated in Coverage Improvement Followup. Like the Nonresponse Followup operation, Coverage Improvement Followup was successful in enumerating a higher percentage of the groups that are typically undercounted: males, young people (34 years old and younger), Hispanics, and Blacks and Some Other Race.

- The field operation cost (stateside) for Coverage Improvement Followup was \$202.4 million. The cost per case – based on the stateside workload of 8,668,809 housing units – was \$23.35.

The Coverage Improvement Followup operation had successes. For example, more than five million people were enumerated, a higher percentage of the typically undercounted groups were enumerated and more than 1.5 million vacant/delete units were converted to occupied. **Clearly, there was substantial coverage improvement by following-up the vacant and deletes from Nonresponse Followup and we should continue to do so.** Also noteworthy, more than 80 percent of the lost mail returns and blank mail returns yielded valid housing units. **While we should continue to follow up on these as well, we should consider adding a “vacant” option to the mailback questionnaire so that respondents could indicate the unit was vacant on Census Day; thus we would not waste valuable resources (time and money) following-up legitimate blank returns.**

There were also areas of the operation that need improvement. For example, more than 50 percent of new construction and Delivery Sequence File adds were deleted. **We need to investigate ways to improve/screen the data we receive from local governments so that we avoid spending time and money following-up invalid/bad data.** There were also a substantial number of occupied units with no population count and households that refused to participate in the Census. In spite of the Census Bureau’s unprecedented outreach and promotion efforts, the public’s participation in the Census remains an issue. **Thus as we strive to count every person, our highest priority should be to work on boosting the public’s participation which will minimize the need for expensive field followup operations and, in turn, improve coverage and reduce cost.**

# 1. BACKGROUND

Coverage Improvement Followup (CIFU), an operation developed for Census 2000 that followed Nonresponse Followup (NRFU), was designed to improve coverage of housing units in the mailout/mailback, update/leave, and urban update/leave areas.

## 1.1 Past Censuses

Evaluations from the 1980 Census showed substantial coverage improvement by following up housing units classified as vacant or nonexistent (delete) in NRFU. The vacant/delete procedure followed-up 5.8 million vacant housing units and 2.3 million deleted units. Approximately 10.1 percent of the vacant units were converted to occupied. The follow-up of deleted units resulted in the addition of about 408,000 housing units to the 1980 census - 177,000 occupied and 231,000 vacant. About 1.7 million persons were added from the vacant/delete follow-up, representing a coverage gain of approximately 0.8 percent. (U.S. Bureau of the Census, 1988)

In 1990, a Vacant/Delete/Movers Check was conducted as part of the Field Follow-up operation. Units classified as vacant or delete in NRFU or during List/Enumerate fieldwork were revisited during the Vacant/Delete/Movers Check to determine if the unit was classified correctly. If the status from the Vacant/Delete/Movers Check matched the one from NRFU then no further processing was done. If the two statuses did not agree, the unit was enumerated and the change in status was made to the Address Control File.

The Vacant/Delete/Movers Check followed-up 2.9 million deleted units and 7.3 million vacant units as classified by NRFU. About 6.4 percent of the deleted units were converted to occupied while 8.7 percent of the vacant units were converted to occupied. A total of 1.5 million persons were added to the census from these conversions, representing a coverage gain of 0.6 percent. Approximately 5.3 percent of the deleted units were converted to vacant. (U.S. Bureau of the Census, 1993)

The Vacant/Delete/Movers Check was also designed to identify and count post-Census Day movers. For Census 2000, this operation occurred in NRFU and not in the CIFU operation. For more information, see U.S. Bureau of the Census, 2000a.

## 1.2 Census 2000

The operational plan for CIFU in Census 2000 was similar to the 1980 and 1990 plans in that most of the CIFU universe consisted of units classified as vacant or delete in NRFU; exceptions included units that were identified as vacant or delete in two census operations, units identified as seasonal vacants and units identified as undeliverable as addressed (UAA). The universe also included addresses requiring followup but identified too late to be included in the NRFU. The additional components of the CIFU universe were:

- Adds from the new construction operation
- Adds from the Update/Leave (U/L) and Urban Update/Leave (UU/L) operations
- Blank mail returns
- Lost mail returns
- Non-respondents in Panels 7, 8, and 9 of the Response Mode and Incentive Experiment (RMIE)
- February 2000 and April 2000 Delivery Sequence File (DSF) adds
- Adds from the Local Update of Census Addresses (LUCA) 1998 and 1999 Appeals

(For more information on the specifications and definition of the CIFU universe, see U.S. Bureau of the Census, 1999, and U.S. Bureau of the Census, 2000d, respectively.)

The Hialeah, Florida (Local Census Office (LCO) 2928) NRFU units were also included in the CIFU operation. This LCO did not follow the NRFU final attempt procedures and their corner-cutting led census officials to retrace information gathered from approximately 71,000 households. In the beginning, the Census Bureau enumerated 20 percent of the city portion of the LCO and sampled the remaining 80 percent of the city (of Hialeah). Due to irregularities found in the sample re-enumeration, we decided to re-enumerate the entire LCO. Consequently, an operational plan was developed to combine NRFU and CIFU for this LCO since there was no time in the schedule to conduct separate operations; additional mail return cuts reduced the NRFU workload by several thousand housing units. Also included in the CIFU workload were a few miscellaneous units that were POP99s (housing units identified during NRFU as occupied without a population count) or Residual NRFU returns.

The CIFU operation was conducted in three separate waves as groups of LCOs completed NRFU. The number of LCOs and the *actual* start and finish dates for each wave were:

- Wave 1 included 342 LCOs and started the CIFU operation on June 26 and finished on July 26.
- Wave 2 included 175 LCOs and started the CIFU operation on July 10 and finished on August 10.
- Wave 3 included three LCOs (2520, 2525, and 2928) and started the CIFU operation on July 30 and finished on August 23.

### 1.2.1 CIFU Data Collection Process

Enumerators visited the CIFU units and determined the occupancy status of the unit as of Census Day. The Census Day status was one of three possible conditions:

- The followup address was *occupied* on Census Day, either by the current household or a different household.
- The followup address was *vacant* on Census Day.
- The followup address was *nonexistent* on Census Day and should not be counted for purposes of the Census.

The addresses classified as nonexistent were units enumerators determined did not qualify as housing units as of Census Day and were therefore coded for deletion.

Based on status, the enumerators completed the applicable items on the appropriate enumerator questionnaire (EQ). Enumerators initially visited each CIFU address in person; occupied units were allowed up to three personal visits and three phone calls. After the required number of attempts, if an enumerator could not contact a household member at a follow-up address, the enumerator attempted to obtain Census Day status of the unit from a knowledgeable non-household (proxy) respondent. For units that were obviously vacant or should be deleted, enumerators could interview a proxy respondent on the first visit.

Although we emphasized obtaining complete interviews, in some instances partial interviews were accepted. The CIFU Program Master Plan (PMP) defines a partial interview as “an interview in which the enumerator was unable to obtain the minimum amount of information from a household member or a non-household (proxy) respondent but obtained at least Unit Status and Population Count” (U.S. Bureau of the Census, 2000c). The following table shows the minimum information required for a complete interview.

**Table 1: Minimum Requirements for a Complete Interview**

If a unit is...	and the EQ form is...	Then the minimum information required is...
Occupied	Short	- name of each person - 3 out of 5 100-percent population questions (age, sex, race, ethnicity, relationship) for each person - house tenure
	Long	- name of each person - 3 out of 5 100-percent population questions (age, sex, race, ethnicity, relationship) for each person - house tenure - any two additional housing questions - any six additional population questions for each person
Vacant - Regular	Short	- Question S4 - Interview Summary (Sections A, B, and C) - Respondent Information (Section R3)
	Long	- Question S4 - Interview Summary (Sections A, B, and C) - Respondent Information (Section R3) - at least two of the double-underlined questions
Vacant - Usual Home Elsewhere (UHE)	Short	- Question S3 - Interview Summary (Sections A, B, and C) - Respondent Information (Section R3)
	Long	- Question S3 - Interview Summary (Sections A, B, and C) - Respondent Information (Section R3) - at least two of the double-underlined questions

Data Source: CIFU Program Master Plan (U.S. Bureau of the Census, 2000b)

Completed questionnaires were processed through the assignment control unit in the LCOs. Assignment control clerks reviewed the questionnaires to ensure the critical items were completed. The critical items included:

- Questionnaire Label
- Enumerator's signature and Crew Leader's initials in the Certification item
- Introduction questions S2-S5, as appropriate
- Coverage questions C1 and C2, as appropriate
- Interview Summary items (A) unit status, (B) POP count and, if applicable, (G) Partial Interview and (H) Refusal.

The wording and the associated skip patterns for the introduction questions S2 through S5 can be seen on the sample enumerator questionnaire in Appendix A. The coverage questions C1 and C2 (also shown in Appendix A) verified that:

- The list of household members on the questionnaire included all the household members who should be counted (C1).
- The household members listed on the questionnaire did not contain anyone who should not be counted (C2).

Questionnaires failing this review were returned to the enumerator; questionnaires passing this review were routed to the Operations Control System (OCS) 2000 for automated check-in. All questionnaires were eventually checked-out using the OCS 2000 and shipped to the appropriate Data Capture Center for data capture.

### *1.2.2 CIFU Quality Assurance Program*

The Quality Assurance (QA) program for CIFU had several objectives. They were:

- To minimize the number of mislabeled questionnaires.
- To ensure the questionnaires were completed correctly.
- To minimize data capture errors on data entered into the OCS 2000.

The first objective was obtained by reviewing the labeled questionnaires before they were distributed to enumerators. The second objective was accomplished by employing experienced enumerators, reviewing all questionnaires for completeness, and verifying the correct classifications on a sample of housing units. The third objective was achieved by reviewing specific data items captured by the OCS 2000.

The sampling of housing units was referred to as the QA Dependent Review. Cases eligible for the Dependent Review consisted of all the CIFU universe components except the vacant and deleted housing units identified in NRFU; these eligible cases were identified by an asterisk on the questionnaire label and address listing pages. As questionnaires were submitted by the enumerators, the crew leader examined the Census ID on the questionnaire. If an asterisk followed the ID number, the housing unit was eligible for the Dependent Review. If the housing

unit was occupied, no additional action was necessary. If the housing unit was coded as vacant or delete, the unit was re-visited by the crew leader and a decision regarding the correctness of the original classification of the housing unit was noted. When a new questionnaire was used for these vacant and delete cases, it was coded as a “replacement” in Item H of the Interview Summary section of the EQ (see Appendix A). For more information on the QA program for the Census 2000 CIFU operation, see U.S. Bureau of the Census, 2000b.

## **2. METHODOLOGY**

The data files used for this evaluation include:

- Decennial Master Address File (DMAF)
- Combo File
- Decennial Response File - Stage 2 (DRF2)
- Hundred percent Census Edited File with the reinstated housing units (HCEF\_D’)
- Technologies Management Office (TMO) Decennial Data Warehouse

### **2.1 Decennial Master Address File (DMAF)**

The DMAF was the source file for the CIFU universe. The definitions of selected DMAF variables can be seen in Appendix B.

#### *2.1.1 Identifying the CIFU-eligible Universe*

The CIFU-eligible universe consisted of residential addresses in the mailback areas regardless of their mail return status. The universe was identified by the type of enumeration area (TEA) variable (values of 1, 2, 6, 7, or 9), the group quarters housing unit flag variable (GQFLG = 0 or 3) and the Coverage Improvement universe (CIU) variable (values of 1 - 9).

#### *2.1.2 Identifying the CIFU Workload*

The CIFU workload was identified by the TEA and GQFLG variables and the values specified in Section 2.1.1. The CIU variable was also used with the values restricted to 2 through 9.

### **2.2 Combo File**

This is a composite file that contains all variables from the MAF (March 2001 MAF extract) and selected variables from the DMAF, DRF2, HCUF and HCEF files. The MAF data were used to identify the added addresses and to classify these by address type. We classified addresses into five categories based on the highest criteria met. The categories were: complete city-style, complete rural route, complete P.O. Box, incomplete address and no address information. The city-style category included all units that had complete city-style addresses, which consists of a house number and street name. The Rural Route category included units that did not have a complete city-style address but did have a complete rural route address, such as Rural Route 2,

Box 3. The P.O. Box category included units that did not have a complete city-style or rural route address but did have a complete P.O. Box address, such as P.O. Box 5. The incomplete category included units that had some address information but did not have a complete address of any type. Addresses were further delineated by whether or not the address had a location description provided during a census field operation. For additional information on how this variable was defined, see U.S. Bureau of the Census, 2001.

The added addresses were identified by the CIFU action code CIFUAC (value of 'A'); the delivery specific address flag variable DLSPECAF='Y' was used to identify the added addresses that met the criteria to be on the DMAF. The housing unit flag variable GQ\_HUF, values of 0 and 3, was used to identify housing units. Selected variables from this file can be seen in Appendix C.

### **2.3 Decennial Response File – Stage 2 (DRF2)**

The DRF2 was the file representing the capture of questionnaire data from Census 2000 and was used as the source for CIFU return responses. The DRF2 return level records for housing units (record type variable RRT = 2 or 3) were used to identify the universe of CIFU responses. Also used to identify the universe was the return form type variable RFT (values of 5, 6, 17 or 18) and the source of the return variable RSOURCE (values of 22, 23 or 24). The DRF2 was merged with the DMAF file to examine the distribution of NRFU responses over time; the variable CID (CIFU Check-in Date) from the DMAF was used to look at this distribution. The files were linked by variable MAFID on the DMAF and variable RUID on the DRF2. The definitions of selected DMAF and DRF2 variables can be found in Appendix B and Appendix D, respectively.

### **2.4 Hundred Percent Census Edited File with the Reinstated Housing Units (HCEF\_D')**

The HCEF\_D' contains the edited and imputed 100 percent data from the census housing units, group quarters and persons; it was the source of the demographics for the CIFU-enumerated housing units and households. To ensure the housing unit and person records were valid CIFU IDs, these files were merged with the DMAF extract described in Section 2.1, which contains the official CIFU universe of housing unit IDs. Appendix E contains a list of selected HCEF\_D' variable definitions; selected DMAF variables are shown in Appendix B.

#### *2.4.1 Identifying the CIFU Housing Unit Universe*

The HCEF\_D' housing unit record (variable RT = 2) was used to obtain the housing unit characteristics of tenure (STENURE = 1, 2, 3 or 4) and unit type (UBSA = 1 to 9999) for the CIFU-enumerated housing units. The CIFU data were extracted using the Coverage Improvement Universe variable CIU = 2 - 9.

#### *2.4.2 Identifying the CIFU Person Universe*

The HCEF\_D' person records (variable RT=3) were used to obtain the person characteristics of sex (QSEX), age (QAGE), Hispanic origin (QSPANX) and race (QRACEX). The housing unit

(HU) file and person file were merged by the MAFID variable on the HU file and the PUID variable on the person file; the merged file contained the housing unit variable CIU (values of 2 through 9, inclusive), which was used to identify the CIFU-enumerated persons.

## **2.5 TMO Decennial Data Warehouse**

The TMO data warehouse was a repository for data from the OCS 2000 and the Pre-Appointment Management System/Automated Decennial Administrative Management System (PAMS/ADAMS). This query system was used to obtain the CIFU start and finish dates for the local census offices. The CIFU “start” date is defined as the day the first CIFU EQ was checked into the OCS 2000. The CIFU “finish” date is defined as the day the last CIFU EQ was checked into the OCS 2000. This information was retrieved from the data warehouse by the attributes “First Check-in Date” and “Last Check-in Date.”

## **2.6 Applying Quality Assurance Procedures**

We applied quality assurance procedures throughout the creation of this report. They encompassed how we determined evaluation methods, created specifications for project procedures and software, designed and reviewed computer systems, developed clerical and computer procedures, analyzed data, and prepared this report.

# **3. LIMITATIONS**

## **3.1 Recount in Hialeah, FL (LCO 2928)**

As a result of the enumeration problems that were mentioned in the background, the Hialeah NRFU data were included with the CIFU data and in all CIFU tabulations.

## **3.2 CIFU Operation Cost**

Cost data do not include Headquarters and regional/LCO infrastructure costs. Cost data for Puerto Rico was not available for this report.

## 4. RESULTS

### 4.1 Profile of the CIFU Workload

Based on the DMAF, there were 121,894,831 housing units that were potentially eligible for CIFU and 8,854,304 housing units in the CIFU workload (including Puerto Rico). Most of the CIFU workload consisted of units classified as vacant or delete in NRFU; exceptions included units that were identified as vacant or delete in two census operations, units identified as seasonal vacants and units identified as UAA. Additional components of the CIFU universe included:

- Adds from the new construction operation
- Adds from the U/L and UU/L operations
- Blank mail returns
- Lost mail returns
- Non-respondents in Panels 7, 8, and 9 of the RMIE
- February 2000 and April 2000 DSF adds
- Adds from the Local Update of Census Addresses 1998 and 1999 Appeals
- Hialeah, FL (LCO 2928) NRFU units
- Miscellaneous units: POP99s (housing units identified as occupied during NRFU that do not have a population count) and Residual NRFU units

Table 2 shows the distribution of the CIFU workload by source and by form type. We see in Table 2 that the majority (73.8 percent) of the CIFU workload was the NRFU vacants and deletes. However, there were 9,893,046 vacants in NRFU but only 3,927,175 vacants in the CIFU universe as a result of excluding the seasonal vacants. Similarly, there were 6,054,399 delete units in NRFU and only 2,606,520 deletes in CIFU due to the exclusion of the UAA housing units and the U/L and UU/L undeliverables. The seasonal vacants reduced the workload by 5,965,871 units and the UAA/undeliverables reduced the workload by 3,447,879; by excluding these, we reduced the CIFU workload by more than 9.4 million units.

The Hialeah and miscellaneous units comprised less than 1.0 percent of the CIFU workload; the remaining seven sources collectively represented 25.6 percent (or approximately one-fourth) of the CIFU workload. The CIFU workload by source and by state can be seen in Appendix F.

**Table 2: CIFU Workload by Source and by Form Type**

Source	Form Type					
	Total Forms		Short Forms		Long Forms	
	Number	Percent	Number	Percent	Number	Percent
Total	8,854,304	100.0	6,951,298	100.0	1,903,006	100.0
› Vacant	3,927,175	44.4	3,087,533	44.4	839,642	44.1
› Delete	2,606,520	29.4	2,043,512	29.4	563,008	29.6
› New Construction	371,812	4.2	315,135	4.5	56,677	3.0
› U/L and UU/L Adds	775,055	8.8	551,216	7.9	223,839	11.8
› Lost Mail Returns	65,281	0.7	50,030	0.7	15,251	0.8
› Blank Mail Returns	475,194	5.4	365,846	5.3	109,348	5.7
› RMIE Returns	5,285	0.1	5,284	0.1	1	0.0
› Feb & Apr DSF Adds	547,383	6.2	466,851	6.7	80,532	4.2
› LUCA 98 & 99 Appeals	17,178	0.2	14,578	0.2	2,600	0.1
› Hialeah	61,547	0.7	49,846	0.7	11,701	0.6
› Miscellaneous	1,874	0.0	1,467	0.0	407	0.0

Data Source: DMAF

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

Note: There should be no long form RMIE returns; the one occurrence shown in the table represents an anomaly in the data.

A housing unit was classified as either occupied, vacant, delete (nonexistent) or undetermined in CIFU. The classifications are defined as follows:

- *Occupied* means someone lived at the follow-up housing unit on Census Day.
- *Vacant* means the follow-up housing unit was for rent, for sale, or sold but not occupied, or for seasonal, recreational, or occasional use on Census Day.
- *Delete* means the follow-up unit was demolished/burned out, cannot locate, duplicate, nonresidential, or other (open to the elements, condemned, under construction) on Census Day.
- *Undetermined* means there was no status received for the follow-up unit.

Table 3 shows the distribution of the CIFU workload by housing unit status and by form type. Approximately 43.4 percent of the units were classified as vacant, almost 30 percent were targeted for deletion and approximately 26.8 percent were occupied. Only 542 of the 8.9 million housing units had an undetermined status at the end of CIFU; approximately 72.0 percent (390) of the 542 units were in Hawaii. This information is provided by state in Appendix G.

**Table 3: CIFU Workload by Housing Unit Status and Form Type**

CIFU HU Status	Form Type					
	Total Forms		Short Forms		Long Forms	
	Number	Percent	Number	Percent	Number	Percent
Total	8,854,304	100.0	6,951,298	100.0	1,903,006	100.0
› Occupied	2,375,668	26.8	1,842,542	26.5	533,126	28.0
› Vacant	3,846,067	43.4	3,003,388	43.2	842,679	44.3
› Delete	2,632,027	29.7	2,104,905	30.3	527,122	27.7
› Undetermined	542	0.0	463	0.0	79	0.0

Data Source: DMAF

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

Of the approximately 2.4 million housing units with a status of occupied in CIFU, 76,762 had no population count; thus the housing unit size of approximately 3.2 percent of these cases might have been imputed. Table 4 shows the source of the occupied units without a population count.

**Table 4: CIFU Occupied Housing Units with no POP Count (by Source)**

Source	Number	Percent
Total Occupied Units w/o POP Count	76,762	100.0
› Vacant	37,403	48.7
› Delete	24,251	31.6
› New Construction	1,844	2.4
› U/L & UU/L Adds	6,185	8.1
› Lost Mail Returns	697	0.9
› Blank Mail Returns	3,280	4.3
› RMIE Adds	62	0.1
› Feb & Apr DSF Adds	2,713	3.5
› LUCA 98 & 99 Appeals Adds	42	0.1
› Hialeah	256	0.3
› Miscellaneous	29	0.0

Data Source: DMAF

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

Since a primary function of the CIFU operation was to improve coverage of housing units that may have been inaccurately classified as vacant or nonexistent (delete) in an earlier operation, we were particularly interested in the final status of the vacants and deletes. Table 5 shows the source of the CIFU housing units and their final status at the end of the CIFU operation.

**Table 5: CIFU Housing Unit Status by Source**

Source	Final Housing Unit Status							
	Total		Occupied		Vacant		Delete	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total	8,854,304	100.0	2,375,668	26.8	3,846,067	43.4	2,632,027	29.7
› Vacant	3,927,175	100.0	859,953	21.9	2,687,466	68.4	379,471	9.7
› Delete	2,606,520	100.0	642,480	24.6	471,785	18.1	1,492,054	57.2
› New Construction	371,812	100.0	100,668	27.1	74,341	20.0	196,792	52.9
› U/L & UU/L Adds	775,055	100.0	350,137	45.2	295,924	38.2	128,982	16.6
› Lost Mail Returns	65,281	100.0	50,555	77.4	7,187	11.0	7,535	11.5
› Blank Mail Returns	475,194	100.0	140,597	29.6	245,079	51.6	89,500	18.8
› RMIE Adds	5,285	100.0	2,985	56.5	1,418	26.8	880	16.7
› Feb & Apr DSF Adds	547,383	100.0	174,589	31.9	52,439	9.6	320,347	58.5
› LUCA 98 & 99 Appeals	17,178	100.0	5,292	30.8	962	5.6	10,924	63.6
› Hialeah	61,547	100.0	47,335	76.9	8,947	14.5	5,264	8.6
› Miscellaneous	1,874	100.0	1,077	57.5	519	27.7	278	14.8

Data Source: DMAF

Note: The columns do not sum to the total column because the table does not include the 542 housing units that had a final status of 'undetermined' at the end of the CIFU operation.

From Table 5, we see that the NRFU operation followed-up 3.9 million vacant units and 2.6 million delete units. Approximately 21.9 percent of the vacant units were converted to occupied and 24.6 percent of the deletes were converted to occupied; these converted units resulted in a net gain of approximately 3.1 million people. (The CIFU-enumerated people are discussed in Section 4.2.) Approximately 18.1 percent of the deletes were converted to vacant. The 1990 field followup operation Vacant/Delete/Movers/Check followed up 7.3 million vacant units and 2.9 million delete units (see Section 1.1). Approximately 8.7 percent of the vacants were converted to occupied and 6.4 percent of the deletes were converted to occupied; approximately 5.3 percent of the deletes were converted to vacant. Compared to the 2000 Census, the 1990 vacant and delete workloads were larger and the conversion rates were lower; these differences were the result of changes in the universe rules for inclusion (i.e., there were different rules for including/excluding vacant and delete units).

Other interesting findings in Table 5 include:

- More than 88 percent of the lost mail returns yielded valid housing units.
- Approximately 81.2 percent of the blank mail returns yielded valid housing units.
- Over 50 percent of the new construction adds were deleted which implies the local governments provided inaccurate data in this program.
- More than 58 percent of the DSF adds were deletes; these probably represent housing units on the DSF that have not been built yet.
- Approximately 63.6 percent of the LUCA Appeals cases were ultimately deleted in the Census proving the addresses were not really valid given that we could not find these addresses in earlier census operations.

The CIFU operation was conducted in three separate waves as groups of LCOs completed NRFU. The number of LCOs and the *actual* start and finish dates for each wave were:

- Wave 1 included 342 LCOs that started the CIFU operation on June 26 and finished on July 26.
- Wave 2 included 175 LCOs that started the CIFU operation on July 10 and finished on August 10.
- Wave 3 included three LCOs (2520, 2525, and 2928) that started the CIFU operation on July 30 and finished on August 23.

According to the OCS 2000, the LCOs started the CIFU operation as early as June 23 ( three days before the official start date for Wave 1) and finished as late as September 19 (27 days after the official end date for Wave 3). The CIFU start date for the LCOs is defined as the date the first CIFU questionnaire was checked into the OCS 2000; the CIFU finish date is defined as the date the last CIFU questionnaire was checked into the OCS 2000. According to the OCS 2000, the start dates ranged from June 23 through August 1, and the CIFU finish dates ranged from July 5 through September 19. According to the DMAF, nothing was checked-in after August 24 thus there is a disconnect between the two data sources. Based on OCS 2000 data, the duration of the CIFU operation ranged from seven days to 82 days.

Table 6 shows when the CIFU questionnaires were checked-in by week and by form type. There were 542 questionnaires with invalid check-in dates that were excluded from the table; thus 8,853,762 valid forms were checked-in between June 23 and August 24. Approximately 78.5 percent of these were short forms and 21.5 percent were long forms. The majority (83.9 percent) of the forms were checked-in between July 2 and July 22 (weeks 3 – 5). Only 2.1 percent of the enumerator questionnaires were checked-in during the last four weeks of the operation. This information can be seen by day and by form type in Appendix H.

**Table 6: CIFU Enumerator Questionnaires Checked-in by Week and by Form Type**

Week	Date	Total Forms		Form Type			
		Number	Percent	Short Forms		Long Forms	
		Number	Percent	Number	Percent	Number	Percent
	Total	8,853,762	100.0	6,950,835	100.0	1,902,927	100.0
1	Jun 23 – Jun 24	976	0.0	836	0.0	140	0.0
2	Jun 25 – Jul 01	747,451	8.4	609,939	8.8	137,512	7.2
3	Jul 02 – Jul 08	2,527,984	28.6	2,001,504	28.8	526,480	27.7
4	Jul 09 – Jul 15	3,008,001	34.0	2,345,326	33.7	662,675	34.8
5	Jul 16 – Jul 22	1,883,965	21.3	1,471,019	21.2	412,946	21.7
6	Jul 23 – Jul 29	504,458	5.7	376,376	5.4	128,082	6.7
7	Jul 30 – Aug 05	103,271	1.2	83,117	1.2	20,154	1.1
8	Aug 06 – Aug 12	32,911	0.4	27,005	0.4	5,906	0.3
9	Aug 13 – Aug 19	39,335	0.4	31,642	0.5	7,693	0.4
10	Aug 20 – Aug 24	5,410	0.1	4,071	0.1	1,339	0.1

Data Source: DMAF

An entry with 0.0 percent indicates the value is less than one-tenth of a percent

The DRF2 was the source file for the CIFU responses to the “Respondent Information” and “Interview Summary” sections on the back of the enumerator questionnaire; an example of these sections are shown in Appendix A. The DRF2 file contained 6,797,414 returns identified as CIFU questionnaires. When merged with the DMAF, the file was reduced by approximately

164,000 returns; thus the new DRF2 file contained 6,633,180 CIFU returns which represent 6,574,971 unique housing units. Note that while there were 8.9 million housing units on the DMAF requiring contact in CIFU, there were only 6.6 million unique housing units on the DRF2 with a CIFU return. The difference in these numbers is a combination of the cases classified as deletes during CIFU that were not on the DRF2 (i.e., no return was generated on the DRF2) and the DRF2 creation process which linked forms and implemented the Primary Selection Algorithm (PSA) <sup>1</sup>. Of these 6.6 million housing units, approximately 99.1 percent provided only one return; the remaining 57,140 provided multiple returns – ranging from two returns to 12 returns. For this evaluation, the DRF2 universe is based on the 6,633,180 CIFU returns.

During an interview, enumerators completed the “Respondent Information” section on the back of the questionnaire. In addition to the respondent’s name and phone number, we wanted to know if the respondent was a household member, an in-mover, or a neighbor or other non-household member. This was determined by their response to the question:

- “Respondent –
- *Lived here on April 1, 2000*
  - *Moved in after April 1, 2000*
  - *Is neighbor or other?”*

A respondent that “*lived here on April 1*” was considered a household (HH) member. A respondent that “*moved in after April 1*” was classified as an in-mover and a respondent that was a “*neighbor or other*” was shown as neighbor/other in the following tables. The in-movers and neighbors/others were collectively known as “proxy” respondents.

We see in Table 7 that approximately 22.1 percent of the CIFU respondents were household members and that long forms had a higher percentage of household member respondents than short forms. Of the 6.6 million CIFU returns, 74.1 percent were completed via a proxy respondent; the majority of the proxies were neighbors or other non-household members for both short and long forms.

**Table 7: CIFU Respondent Types by Form Type**

Respondent Type	Form Type					
	Total Forms		Short Forms		Long Forms	
	Number	Percent	Number	Percent	Number	Percent
Total	6,633,180	100.0	5,166,292	100.0	1,466,888	100.0
HH Member	1,467,775	22.1	1,124,867	21.8	342,908	23.4
Proxy	4,912,959	74.1	3,845,870	74.4	1,067,089	72.7
› In-mover	453,755	6.8	353,713	6.8	100,042	6.8
› Neighbor/Other	4,459,204	67.2	3,492,157	67.6	967,047	65.9
No Response	252,446	3.8	195,555	3.8	56,891	3.9

Data Source: DRF2

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

<sup>1</sup> The Primary Selection Algorithm selected the person and return records best describing the household that lived at the address on Census Day.

Although the proxy rate appears to be high, Table 8 shows that the majority – 3,701,297 or 75.3 percent - of the proxy interviews were for vacant housing units, which makes sense since there is typically no one at the unit to interview. The exception would be the seasonal/vacation units which are occasionally occupied by the household; these were classified as “vacant” since the household usually lives somewhere else, but can be enumerated by a household member. Less than 1.0 percent of the vacant units were seasonal units enumerated by a household member. Approximately 18.1 percent (887,324) of the proxy interviews were for occupied units. To put the proxy numbers in perspective, 96.0 percent of the vacant units were enumerated by a proxy respondent while 37.1 percent of the occupied units were enumerated by a proxy.

**Table 8: CIFU Respondent Types for Occupied and Vacant Housing Units**

Respondent Type	Total HUs		Occupied HUs		Vacant HUs	
	Number	Percent	Number	Percent	Number	Percent
Total	6,633,180	100.0	2,389,855	100.0	3,855,500	100.0
HH Member	1,467,775	22.1	1,418,520	59.4	32,966	0.9
Proxy	4,912,959	74.1	887,324	37.1	3,701,297	96.0
› In-mover	453,755	6.8	42,097	1.8	406,340	10.5
› Neighbor/Other	4,459,204	67.2	845,227	35.4	3,294,957	85.5
No Response	252,446	3.8	84,011	3.5	121,237	3.1

Data Source: DRF2

Note: the occupied and vacant columns do not sum to the total column because the respondent types for the “delete” and “no status” housing units are not included in the table.

Table 9 shows the distribution of the proxy interviews by week and by form type. There were 473 proxy interviews with invalid check-in dates that were excluded from the table; thus 4,912,486 proxy interviews with valid dates were checked-in between June 23 and August 24. Approximately 78.3 percent of the forms were short forms and 21.7 percent were long forms. More than 85 percent of the proxy interviews were checked-in between July 2 and July 22 (weeks 3-5) which is consistent with the data in Table 6; approximately 1.2 percent of the forms were checked-in during the last four weeks of the operation. Proxy interviews checked-in by day and by form type can be seen in Appendix I.

**Table 9: CIFU Proxy Interviews Checked-in by Week and by Form Type**

Week	Date	Total Forms		Form Type			
		Number	Percent	Short Forms		Long Forms	
		Number	Percent	Number	Percent	Number	Percent
	Total	4,912,486	100.0	3,845,464	100.0	1,067,022	100.0
1	Jun 23 – Jun 24	440	0.0	390	0.0	50	0.0
2	Jun 25 – Jul 01	366,832	7.5	297,612	7.7	69,220	6.5
3	Jul 02 – Jul 08	1,426,262	29.0	1,127,781	29.3	298,481	28.0
4	Jul 09 – Jul 15	1,692,211	34.4	1,315,899	34.2	376,312	35.3
5	Jul 16 – Jul 22	1,060,183	21.6	826,843	21.5	233,340	21.9
6	Jul 23 – Jul 29	309,262	6.3	232,094	6.0	77,168	7.2
7	Jul 30 – Aug 05	30,236	0.6	22,838	0.6	7,398	0.7
8	Aug 06 – Aug 12	9,884	0.2	8,225	0.2	1,659	0.2
9	Aug 13 – Aug 19	14,140	0.3	11,392	0.3	2,748	0.3
10	Aug 20 – Aug 24	3,036	0.1	2,390	0.1	646	0.1

Data Source: DRF2

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

In addition to respondent information, enumerators were instructed to complete Item A (HU Status on April 1) and Item B (POP on April 1) in the Interview Summary and to check all other boxes in the Interview Summary as appropriate. Other potentially appropriate categories were:

- Spanish – Item D, Interview Summary
- Partial Interview – Item G, Interview Summary
- Refusal – Item H, Interview Summary
- Replacement – Item I, Interview Summary

Table 10 shows these interview summary responses by form type. Of the 6.6 million total returns, approximately 5.3 percent were partial interviews and 1.4 percent were refusals; less than 2.0 percent of the total forms were Spanish interviews and Replacement forms. While long forms were 22.1 percent of the total returns, the long form rates for partial interviews (42.8 percent) and refusals (40.7 percent) were substantially higher than the overall long form rate, indicating poorer quality for the long forms compared to the short forms. The long form rate for Spanish interviews (21.6 percent) and Replacement forms (20.1 percent) was lower than the overall long form rate.

**Table 10: CIFU Interview Summary Responses by Form Type**

Return Responses	Total Forms		Form Type			
	Number	Percent	Short Forms		Long Forms	
	Number	Percent	Number	Percent	Number	Percent
Total Returns	6,633,180	100.0	5,166,292	77.9	1,466,888	22.1
› Spanish	54,895	0.8	43,026	0.8	11,869	0.8
› Partial Interview	351,353	5.3	201,079	3.9	150,274	10.2
› Refusal	93,805	1.4	55,597	1.1	38,208	2.6
› Replacement	39,778	0.6	31,771	0.6	8,007	0.5

Data Source: DRF2

One measure of the quality of the CIFU operation was the completeness of the data collected by the enumerators. The Census Bureau went to great lengths to obtain complete data directly from household members. However, in the cases where the household members could not be contacted or refused to answer part or all of the census questions, we allowed enumerators to collect less complete data than were called for by the census questionnaire. These incomplete interviews were called Partial Interviews. A partial interview is defined as “an interview in which the enumerator was unable to obtain the minimum amount of information from a household member or a proxy respondent but obtained at least *unit status* and *population count*.”

We used this partial interview data to compare the completeness of the proxy interviews with the non-proxy (HH member) interviews by examining the proportion of each group coded as partial interviews. In Table 11, we see that 70.4 percent of the partial interviews were also proxy interviews. Approximately 26.6 percent of the partial interviews were with a household member; this is what we call a “soft” refusal - the household member is reluctant to give more than the unit status and population count.

**Table 11: CIFU Partial Interviews by Respondent Type for Occupied and Vacant HUs**

Respondent Type	Total HUs		Occupied HUs		Vacant HUs	
	Number	Percent	Number	Percent	Number	Percent
Total Partial Interviews	351,353	100.0	312,317	100.0	36,776	100.0
HH Member	93,391	26.6	92,724	29.7	516	1.4
Proxy	247,474	70.4	210,810	67.5	34,707	94.4
› In-mover	11,522	3.3	8,473	2.7	3,011	8.2
› Neighbor/Other	235,952	67.2	202,337	64.8	31,696	86.2
No Response	10,488	3.0	8,783	2.8	1,553	4.2

Data Source: DRF2

The next table shows the distribution of the partial interviews by week and by form type; this information is provided by day and by form type in Appendix J. There were 11 partial interviews with invalid check-in dates that were excluded from Table 12. Thus Table 12 shows there were 351,342 partial interviews that were checked-in between June 23 and August 24. Approximately 57.2 percent of the partial interviews were short form interviews and 42.8 percent were long form interviews. Clearly, there was a disproportionate number of long form partial interviews compared to the overall long form distribution rate (see Table 10). Consistent with Table 6 and Table 9, approximately 82.0 percent of the partial interviews were checked-in during the peak weeks of July 2 through July 22; during these three weeks, long forms were checked in at a slightly faster rate than short forms. A little more than 3.0 percent of the partial interviews were checked-in during the last four weeks of the operation.

**Table 12: CIFU Partial Interviews Checked-in by Week and by Form Type**

Week	Date	Total Forms		Form Type			
		Number	Percent	Short Forms		Long Forms	
	Total	Number	Percent	Number	Percent	Number	Percent
	Total	351,342	100.0	201,072	100.0	150,270	100.0
1	Jun 23 – Jun 24	2	0.0	2	0.0	0	0.0
2	Jun 25 – Jul 01	20,517	5.8	12,458	6.2	8,059	5.4
3	Jul 02 – Jul 08	85,636	24.4	49,995	24.9	35,641	23.7
4	Jul 09 – Jul 15	117,859	33.5	65,632	32.6	52,227	34.8
5	Jul 16 – Jul 22	84,480	24.0	48,416	24.1	36,064	24.0
6	Jul 23 – Jul 29	31,682	9.0	17,995	8.9	13,687	9.1
7	Jul 30 – Aug 05	4,484	1.3	2,461	1.2	2,023	1.3
8	Aug 06 – Aug 12	2,093	0.6	1,322	0.7	771	0.5
9	Aug 13 – Aug 19	3,388	1.0	2,039	1.0	1,349	0.9
10	Aug 20 – Aug 24	1,201	0.3	752	0.4	449	0.3

Data Source: DRF2

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

Table 13 shows the distribution of the refusals with valid check-in dates by week and by form type; there were two refusals with an invalid check-in date that were excluded from the table. Approximately 59.3 percent of the refusals were short form enumerator questionnaires; 40.7 percent were long form questionnaires, which is substantially higher than the 22.1 percent long form distribution rate shown in Table 10. Consistent with Tables 6, 9 and 12, approximately 84.4 percent of the refusals were checked-in during weeks three through five;

short forms were checked-in at a slightly faster rate than long forms. Approximately 2.0 percent of the refusals were checked-in during the last four weeks of the CIFU operation. The distribution of the refusals by day and by form type can be seen in Appendix K.

**Table 13: CIFU Refusals Checked-in by Week and by Form Type**

Week	Date	Total Forms		Form Type			
		Number	Percent	Short Forms		Long Forms	
	Total	93,803	100.0	55,595	100.0	38,208	100.0
1	Jun 23 – Jun 24	0	0.0	0	0.0	0	0.0
2	Jun 25 – Jul 01	5,302	5.7	3,265	5.9	2,037	5.3
3	Jul 02 – Jul 08	23,477	25.0	14,159	25.5	9,318	24.4
4	Jul 09 – Jul 15	34,107	36.4	20,176	36.3	13,931	36.5
5	Jul 16 – Jul 22	21,602	23.0	12,807	23.0	8,795	23.0
6	Jul 23 – Jul 29	7,404	7.9	4,052	7.3	3,352	8.8
7	Jul 30 – Aug 05	698	0.7	341	0.6	357	0.9
8	Aug 06 – Aug 12	233	0.2	130	0.2	103	0.3
9	Aug 13 – Aug 19	766	0.8	514	0.9	252	0.7
10	Aug 20 – Aug 24	214	0.2	151	0.3	63	0.2

Data Source: DRF2

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

Continuation forms were used in CIFU when there were more than five people in a household; Table 14 shows how often the continuation forms were used during CIFU. If a continuation form was used, the enumerator checked the “Continuation form(s) attached” box in the upper left-hand corner of the enumerator questionnaire. (An example of an enumerator questionnaire can be seen in Appendix A.) For those who checked this box, we examined how many continuation forms for the address were attached. In Table 14, we see that there were 71,080 continuation forms used in CIFU. In other words, approximately 1.1 percent of the 6.6 million CIFU returns had a continuation form attached. For these cases, the number of forms attached ranged from one form to as many as 99 forms. Approximately 95.6 percent of these had one continuation form attached, indicating there were 6 to 10 people in the household. Approximately 2.9 percent had two continuation forms attached, indicating there were 11 to 15 people in the household. Approximately 1.5 percent of the returns had three or more continuation forms attached. There were no invalid responses.

**Table 14: Distribution of Continuation Forms Used in CIFU**

		Number	Percent
Total		71,080	100.0
Number of Continuation Forms attached...	1 form	67,988	95.6
	2 forms	2,033	2.9
	3 forms	172	0.2
	4 forms	61	0.1
	5 forms	48	0.1
	6 – 10 forms	434	0.6
	11 or more forms	344	0.5

Data Source: DRF2

#### 4.2 Demographics of the CIFU-enumerated and how they compare with the NRFU-enumerated and the Self-enumerated

The HCEF\_D' was the source file for the demographics of the CIFU housing units and households. There were 6,357,586 housing units in the HCEF\_D' CIFU universe. Note that the DMAF CIFU universe (Section 4.1) consisted of 8,854,304 housing units. The difference between the DMAF and HCEF\_D' universes is a result of the Hundred percent Census Unedited File (HCUF) building process which includes the DRF2 creation process, the PSA, the "kill" processing, the housing unit determination processing, unclassified estimation and the housing unit unduplication operation. Of the CIFU workload, approximately 2.5 million housing units did not meet the criteria to be in the Census (i.e., on the HCUF and the HCEF\_D'). There were 5,270,607 people living in the 6.4 million housing units; Table 15 shows the source of these 5.3 million people.

**Table 15: CIFU-enumerated People by Source**

Source	Number	Percent
Total	5,270,607	100.0
› Vacant	1,733,785	32.9
› Delete	1,404,395	26.6
› New Construction	244,759	4.6
› U/L & UU/L Adds	861,729	16.3
› Blank Mail Returns	129,966	2.5
› Lost Mail Returns	331,242	6.3
› RMIE	7,562	0.1
› Feb & Apr DSF Adds	398,673	7.6
› LUCA 98 & 99 Adds	8,733	0.2
› Hialeah units	145,616	2.8
› Miscellaneous units	4,147	0.1

Data Source: HCEF\_D' and DMAF

The next few tables highlight the distribution of the housing unit and person characteristics for the CIFU-enumerated and compares them with the characteristics of the NRFU-enumerated and the self-enumerated. The demographic data for the NRFU and self-enumerated housing units and households were taken directly from the NRFU Evaluation (see U.S. Bureau of the Census, 2002a). Tables 16 and 17 compare the tenure (owned versus rented) and unit type (single versus multi) of the 6.4 million housing units, respectively. Tables 18 - 22 compare the demographics of the households; these tables show the distribution of sex, age, Hispanic origin, race and tenure of the 5.3 million people in the households.

The tenure of the CIFU housing units in Table 16 was obtained through the responses to the housing question: *“Is this house/apartment/mobile home...*

- *Owned by you or someone in this household with a mortgage,*
- *Owned by you or someone in this household free and clear,*
- *Rented for cash rent, or*
- *Occupied without payment of cash rent?”*

These four options were collapsed into two categories – the first two became *“owned”* and the last two became *“rented.”* Table 16 also contains the category *“vacant”* since the data source for this information (HCEF\_D’) included *“not in universe (vacant)”* as an optional response. We see in Table 16 that 65.8 percent of the CIFU units were vacant which is not surprising since the majority of the CIFU workload was vacant/delete units. We also see in Table 16 that the percentage of units enumerated in CIFU and NRFU were more evenly distributed between owned and rented than the self-enumerated units. We attribute the higher percentage of owned units for the self-enumerated to the greater sense of community involvement of homeowners.

**Table 16: Tenure of the CIFU, NRFU and Self-enumerated Housing Units**

Tenure	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	6,357,586	100.0	39,273,344	100.0	74,376,966	100.0
› Vacant	4,186,382	65.8	9,186,631	23.4	585,231	0.8
› Owned	1,110,547	17.5	15,414,050	39.2	53,368,207	71.8
› Rented	1,060,657	16.7	14,672,663	37.4	20,423,528	27.5

Data Source: HCEF\_D’ and the NRFU Evaluation (H.5)

The unit type in Table 17 is identified by the variable UBSA, or Units at Basic Street Address (BSA). If the unit at the BSA had one unit, it was classified as a single unit; if the unit at the BSA had two or more units, it was classified as a multi-unit. Once again, we see that the CIFU and NRFU units were distributed similarly. We also see that single units were more likely to be self-enumerated than multi-units. This is not surprising since single units are more likely to be owned and homeowners generally have a stronger community connection.

**Table 17: Unit Type of the CIFU, NRFU and Self-enumerated Housing Units**

Unit Type	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	6,357,586	100.0	39,273,344	100.0	74,376,966	100.0
› Single Units	4,072,963	64.1	25,235,889	64.3	58,350,999	78.5
› Multi Units	2,284,623	35.9	14,037,455	35.7	16,025,967	21.5

Data Source: HCEF\_D' and the NRFU Evaluation (H.5)

Table 18 shows the distribution of males and females. From the table, we see that females were more likely to be counted on self-enumerated returns, i.e. they make up the biggest percentage of the self-enumerated population; more males were counted on CIFU and NRFU returns.

**Table 18: Sex Characteristics of the CIFU, NRFU and Self-enumerated Households**

Sex	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	5,270,607	100.0	80,735,128	100.0	189,122,655	100.0
› Male	2,689,206	51.0	40,774,677	50.5	90,815,964	48.0
› Female	2,581,401	49.0	39,960,451	49.5	98,306,691	52.0

Data Source: HCEF\_D' and the NRFU Evaluation (H.5)

The ages of the 5.3 million people enumerated in CIFU ranged from less than a year old to 113 years old; ages of the NRFU-enumerated ranged from less than one year to 115 years old. These ranges were collapsed into the seven categories shown in Table 19. Again we see a similarity between the CIFU and NRFU distributions. Approximately 56.9 percent of the CIFU-enumerated were 34 years old and younger. While this is slightly lower than the percentage of NRFU-enumerated people in this age group, it is approximately 11.5 percentage points higher than the self-enumerated population for this age group. Approximately 38.7 percent of the self-enumerated population was 45 years old and older while 26.7 percent of the CIFU-enumerated were 45 or older; this is slightly higher than the percentage of NRFU-enumerated in this age group. Thus it appears that older people are more likely to be self-enumerated than younger people. In the 35 to 44 age group, there was less than one percentage point difference between the groups.

**Table 19: Age Characteristics of the CIFU, NRFU and Self-enumerated Households**

Age	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	5,270,607	100.0	80,735,128	100.0	189,122,655	100.0
› 00 – 17 yrs	1,438,790	27.3	24,063,964	29.8	46,901,496	24.8
› 18 – 24 yrs	602,928	11.4	9,554,871	11.8	14,470,269	7.7
› 25 – 34 yrs	957,648	18.2	13,904,029	17.2	24,310,776	12.9
› 35 – 44 yrs	865,173	16.4	13,435,658	16.6	30,121,374	15.9
› 45 – 54 yrs	609,616	11.6	9,465,482	11.7	27,248,720	14.4
› 55 – 64 yrs	356,544	6.8	4,922,418	6.1	18,796,677	9.9
› 65+ yrs	439,908	8.3	5,388,706	6.7	27,273,343	14.4

Data Source: HCEF\_D' and the NRFU Evaluation (H.5)

The Hispanic category in Table 20 includes those that were Mexican, Puerto Rican, Cuban, Central American, Dominican, Latin/South American and other Hispanics. We see that Hispanics were 17.5 percent of the CIFU population. While this is slightly less than the percentage of Hispanics enumerated in NRFU, it is almost six percentage points higher than the self-enumerated Hispanics.

**Table 20: Hispanic Origin of the CIFU, NRFU and Self-enumerated Households**

Hispanic Origin	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	5,270,607	100.0	80,735,128	100.0	189,122,655	100.0
› Not Hispanic	4,349,153	82.5	66,187,643	82.0	166,950,304	88.3
› Hispanic	921,454	17.5	14,547,485	18.0	22,172,351	11.7

Data Source: HCEF\_D' and the NRFU Evaluation (H.5)

Table 21 compares the race characteristic for the three enumerated groups. Although the CIFU percentages of Blacks and Some Other Race were lower than the NRFU percentages for these groups, they were still higher than the percentages of the Blacks and Some Other Race for the self-enumerated population. Similarly, there was a higher percentage of Whites enumerated in CIFU than NRFU but the percentage was still lower – more than nine points lower – than the percentage of self-enumerated Whites. Fewer Asians and American Indians/Alaskan Natives were enumerated in CIFU than were NRFU-enumerated or self-enumerated.

**Table 21: Race Characteristics of the CIFU, NRFU and Self-enumerated Households**

Race	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	5,270,607	100.0	80,735,128	100.0	189,122,655	100.0
› White	3,744,171	71.0	54,248,751	67.2	151,560,251	80.1
› Black	895,754	17.0	14,573,315	18.1	18,828,965	10.0
› American Indian / Alaskan Native	50,123	1.0	970,025	1.2	2,017,678	1.1
› Asian	175,744	3.3	3,515,009	4.4	7,129,558	3.8
› Native Hawaiian / Other Pacific Islander	12,645	0.2	267,640	0.3	311,233	0.2
› Some Other Race	392,170	7.4	7,160,388	8.9	9,274,970	4.9

Data Source: HCEF\_D' and the NRFU Evaluation (H.5)

The next table compares the distribution of people living in owned units with those living in rented units. In Table 22 we see that the CIFU and NRFU-enumerated people are similarly distributed – approximately 55 percent of the people lived in owned units and 45 percent lived in rented units. Almost three-fourths of the self-enumerated people lived in owned units while a little more than one-fourth lived in rented units.

**Table 22: Tenure of the CIFU, NRFU and Self-enumerated Households**

Tenure	CIFU-enumerated		NRFU-enumerated		Self-enumerated	
	Number	Percent	Number	Percent	Number	Percent
Total	5,270,607	100.0	80,735,128	100.0	189,122,655	100.0
‣ Owned	2,913,064	55.3	44,145,685	54.7	141,208,651	74.7
‣ Rented	2,357,543	44.7	36,589,443	45.3	47,914,004	25.3

Data Source: HCEF\_D' and the NRFU Evaluation (H.5)

### 4.3 Impact of Other Operations on CIFU

There were 10,465 addresses added during CIFU. All of these addresses were in areas where CIFU occurred (TEA = 1, 2, 6, 7, 9) and all 10,465 met the criteria to be included on the DMAF (see U.S. Bureau of the Census, 2000e).

In addition to the adds, there were 2,627,741 addresses deleted during CIFU. A table of the 10,465 added and 2,627,741 deleted addresses by state can be seen in Appendix L. Tables 23, 24 and 25 show the distribution of these added and deleted addresses by type of enumeration area, by unit type (single versus multi-unit) and by address type, respectively.

There were three types of enumeration areas in CIFU. They were:

- *Mailout/Mailback (MO/MB)*: areas that were predominately city-style (house number/street name) addresses used for mail delivery by the USPS.
- *Update/Leave (U/L)*: areas that were city-style and non-city style (e.g., P.O. Box or Rural Route) mailing addresses.
- *Urban Update/Leave (UU/L)*: areas that were originally mailout/mailback that were converted to the update/leave enumeration methodology.

Table 23 shows the distribution of the added and deleted addresses by TEA. While the majority of the housing units were in the mailout/mailback areas, the added and deleted addresses had a substantially higher percentage of mailout/mailback units than the CIFU universe. Similarly, 31.3 percent of the CIFU universe was in the update/leave areas but the percentages of added and deleted units in the update/leave areas were considerably less. The distribution of the adds and deletes for the urban update/leave areas was consistent with the overall CIFU population.

**Table 23: CIFU Added and Deleted Addresses by TEA**

TEA	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
Total	8,854,304	100.0	10,465	100.0	2,627,741	100.0
‣ Mailout/Mailback	6,037,885	68.2	8,898	85.0	2,108,616	80.2
‣ Update/Leave	2,771,176	31.3	1,527	14.6	496,862	18.9
‣ Urban Update/Leave	45,243	0.5	40	0.4	22,263	0.8

Data Source: MAF/DMAF/HCUF/HCEF\_D' Combo File

In the next table, we compare the distribution of the added and deleted addresses by unit type (single versus multi-unit). If the unit at the BSA had one unit, it was classified as a single unit; if it had two or more units, it was classified as a multi-unit. In addition, the multi-units were subdivided by the number of units at the BSA into the five categories shown in Table 24. From Table 24, we see that the majority (71.4 percent) of the adds were single units and the majority (51.1 percent) of the deletes were multi-units.

**Table 24: CIFU Added and Deleted Addresses by Unit Type**

Unit Type	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
Total	8,854,304	100.0	10,465	100.0	2,627,741	100.0
‣ Single Unit	5,218,821	58.9	7,471	71.4	1,283,842	48.9
‣ Multi Unit	3,635,483	41.1	2,994	28.6	1,343,899	51.1
2 – 4 Units	1,414,252	16.0	895	8.6	547,721	20.8
5 – 9 Units	471,745	5.3	335	3.2	176,705	6.7
10 – 19 Units	362,912	4.1	285	2.7	113,263	4.3
20 – 49 Units	389,913	4.4	360	3.4	123,632	4.7
50+ Units	996,661	11.3	1,119	10.7	382,578	14.6

Data Source: MAF/DMAF/HCUF/HCEF\_D Combo File

Table 25 shows the distribution of added and deleted addresses by address type. The classes of address types were based on a hierarchy of available address information; we classified addresses into five categories based on the highest criteria met. These categories were:

- Complete City-Style with and without location description
- Complete Rural Route with and without location description
- Complete P.O. Box with and without location description
- Incomplete Address with and without location description
- No Address Information with and without location description

The city-style category included all units that had complete city-style addresses, which consists of a house number and street name. The Rural Route category included units that did not have a complete city-style address but did have a complete rural route address such as Rural Route 2, Box 3. The P.O. Box category included units that did not have a complete city-style or complete rural route address but did have a complete P.O. Box address, such as P.O. Box 5. The incomplete category included units that had some address information but did not have a complete address of any type. Addresses were further delineated by whether or not the address had a location description provided during a census field operation. For additional information on how this variable was defined, see U.S. Bureau of the Census, 2001.

In Table 25 we see that all of the adds and the majority of the deletes were complete city-style addresses. The added and deleted addresses by address type for the mailout/mailback, update/leave, and urban update/leave areas can be found in Appendices M, N, and O, respectively.

**Table 25: CIFU Added and Deleted Addresses by Address Type**

Address Type	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
Total	8,854,304	100.0	10,465	100.0	2,627,741	100.0
› Complete City-Style	7,467,646	84.3	10,465	100.0	2,290,153	87.2
With location description	267,169	3.0	228	2.2	87,378	3.3
without location description	7,200,477	81.3	10,237	97.8	2,202,775	83.8
› Complete Rural Route	159,001	1.8	0	0.0	23,987	0.9
With location description	154,459	1.7	0	0.0	23,008	0.9
without location description	4,542	0.1	0	0.0	979	0.0
› Complete PO Box	78,278	0.9	0	0.0	14,264	0.5
With location description	73,809	0.8	0	0.0	12,921	0.5
without location description	4,469	0.1	0	0.0	1,343	0.1
› Incomplete Address	201,577	2.3	0	0.0	98,068	3.7
With location description	161,464	1.8	0	0.0	84,512	3.2
without location description	40,113	0.5	0	0.0	13,556	0.5
› No Address Information	947,802	10.7	0	0.0	201,269	7.7
With location description	945,095	10.7	0	0.0	200,042	7.6
without location description	2,707	0.0	0	0.0	1,227	0.0

Data Source: MAF/DMAF/HCUF/HCEF\_D' Combo File

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

Table 26 shows the distribution of the housing unit IDs that were enumerated multiple times – once in CIFU and again in at least one other data capture operation listed in the table. While there were 5.1 million IDs with multiple data captures, the majority (98.6 percent) were enumerated in CIFU and NRFU which is not surprising since the majority of the CIFU workload consisted of NRFU housing units classified as vacant or delete. Less than one percent of the IDs were enumerated in CIFU and by a paper mail return; approximately 0.5 percent were enumerated in CIFU and at least two other data capture operations.

**Table 26: CIFU-enumerated IDs with Multiple Data Captures**

Operation	Number of IDs	Percent
Total	5,091,331	100.0
› Mail Return	44,832	0.9
› Be Counted Form (paper)	1,071	0.0
› Be Counted Form (via TQA)	831	0.0
› Internet	0	0.0
› Telephone Questionnaire Assistance (TQA)	5	0.0
› Coverage Edit Followup	0	0.0
› Nonresponse Followup	5,021,378	98.6
› Multiple Operations (three or more)	23,214	0.5

Data Source: DMAF

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

### 4.3 CIFU Operation Cost

The field operation cost for CIFU was taken from PAMS/ADAMS - the payroll and administrative system used to support the 2000 Census. The total field operation cost for CIFU was \$202.4 million; these costs do not include HQ and regional/LCO infrastructure costs. [Note: The CIFU Financial Management Report data were considered the official operational cost data since it included cost information on the permanent Census Bureau field employees paid through the National Finance Center as well as the temporary census staff who worked on CIFU. To be consistent with the NRFU evaluation, the PAMS/ADAMS data were cited.] The components of the operation costs are shown in Table 27. The mileage cost included training miles and production miles because training miles were not separately recorded on the payroll form D-308. Other objects cost included civilian personnel benefits, telecommunications services and other costs.

**Table 27: CIFU Field Operation Cost**

Cost Component	Dollars	Percent
Total	202,412,399	100.0
› Production Salary Cost	136,034,796	67.2
› Training Salary Cost	25,471,126	12.6
› Mileage Cost	27,486,774	13.6
› Other Objects Cost	13,419,703	6.6

Data Source: U.S. Bureau of the Census, 2002b

Note: Cost data for Puerto Rico was not available for this report.

The DMAF workload – stateside – was 8,668,809 housing units. Based on the workload associated with enumerating every unit, the cost per case was \$23.35. The cost data for Puerto Rico were not available for this report.

## 5. CONCLUSIONS AND RECOMMENDATIONS

The CIFU enumerated a total of 5.3 million people. Like the NRFU operation, CIFU enumerated a higher percentage of the typically undercounted groups: males, young people (34 years old and younger), Hispanics, and Blacks and Some Other Race.

The CIFU followed-up 3.9 million vacant units and 2.6 million delete units; approximately 21.9 percent of the vacant units were converted to occupied and 24.6 percent of the deletes were converted to occupied. Approximately 18.1 percent of the deletes were converted to vacant. **Clearly, we have improved coverage by following-up the vacants and deletes from NRFU and we should continue to do so.** But we also improved coverage by following-up the lost mail returns and blank mail returns; more than 80 percent of the lost and blank mail returns yielded valid housing units. **While we should continue to follow up on these as well, we should consider adding a “vacant” option to the mailback questionnaire so that respondents could indicate the unit was vacant on Census Day; thus we would not waste valuable resources (time and money) following-up these legitimate blank returns.**

While there were successes, there were areas of the operation that need to be improved. For example, more than 50 percent of the new construction adds and DSF adds were deleted. **We need to investigate ways to improve/screen the data we get from local governments so that we avoid wasting time and money following-up invalid/bad data.** In addition, there were almost 77,000 occupied housing units with no POP count and approximately 94,000 CIFU households that refused to participate in the Census. In spite of the Census Bureau's unprecedented outreach and promotion efforts, the public's participation in the Census remains an issue because of language/cultural differences, fears of the government or concerns over privacy. **Thus as we strive to count every person, our highest priority should be to work on boosting the public's participation; this will minimize the need for expensive followup operations and, in turn, improve coverage and reduce cost.**

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# Appendix A: Example of an Enumerator Questionnaire

OMB No. 0607-0856: Approval Expires 12/31/2000

FORM **D-1(E)** U.S. DEPARTMENT OF COMMERCE  
(1-21-99) BUREAU OF THE CENSUS

**ENUMERATOR QUESTIONNAIRE**  
**United States Census 2000**

Continuation form(s) attached  
Number of continuation forms for this address

LCO State County Tract Block  
AA Map Spot Unit ID

← APPLY LABEL HERE →

House No. Street name, Rural route and box, or PO box  
Apt. No. or Location  
City State ZIP Code

**RECORD OF CONTACT**

Type	Month	Day	Time	Outcome	Type	Month	Day	Time	Outcome
<input checked="" type="checkbox"/> Personal			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<input type="checkbox"/> Personal			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
<input type="checkbox"/> Personal			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<input type="checkbox"/> Telephone			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
<input type="checkbox"/> Telephone			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<input type="checkbox"/> Personal			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
<input type="checkbox"/> Personal			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<input type="checkbox"/> Telephone			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
<input type="checkbox"/> Telephone			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<input type="checkbox"/> Personal			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.
			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<input type="checkbox"/> Telephone			:	<input type="checkbox"/> a.m. <input type="checkbox"/> p.m.

OUTCOME CODES: NV = Left notice of visit NC = No contact RE = Refusal CI = Conducted interview OT = Other

**CERTIFICATION**

I certify that the entries I have made on this questionnaire are true and correct to the best of my knowledge.  
Enumerator's signature and date \_\_\_\_\_

Crew Leader's initials \_\_\_\_\_ CLD number \_\_\_\_\_  
Month \_\_\_\_\_ Day \_\_\_\_\_

**INTRODUCTION**

**S1. Hello, I'm (Your name) from the Census Bureau. (Show ID card.) Is this (Read address)?**  
 Yes - Continue with question S2  
 No - Ask: **Can you tell me where to find (Read address)?** END INTERVIEW

**S2. I'm here to complete a census questionnaire for this address. It should take about 7 minutes. This notice (Hand respondent a Privacy Act Notice) explains that your answers are kept confidential. Did you or anyone in this household live here on Saturday, April 1, 2000?**  
 Yes - Continue with question S3  
 No → Skip to question S4

**S3. Is this (house/apartment/mobile home) a vacation or seasonal home, or only occasionally occupied by your household?**  
 Yes → Skip to items A, B, and C in the "Interview Summary" block and refer to Card J.  
 No → Skip to S5

**S4. On April 1, 2000 was this unit —**  
 Vacant → Skip to items A, B, and C in the "Interview Summary" block and refer to Card K.  
 Occupied by a different household? Using a knowledgeable respondent, complete this questionnaire for the Census Day household and refer to Card K.

**S5. How many people were living or staying in this (house/apartment/mobile home) on April 1, 2000?**  
 Number of people

 0015246556

**COVERAGE**

**C1. I need to make sure I have counted everyone who lived or stayed here on April 1, 2000. Did I miss —**  
 – any children, including foster children?  
 – anyone away on business or vacation?  
 – any roomers or housemates?  
 – anyone else who had no other home?

- Yes – Add person(s) to question 1, mark the "Add" box, and ask questions 2–6. Correct the POP count in question S5 on the front cover.
- No – Continue with C2.

**C2. The Census Bureau has already counted certain people so I don't want to count them again here. On April 1, 2000, were any of the people you told me about —**

- away at college?
- away in the Armed Forces?
- in a nursing home?
- in a correctional facility?

- Yes – Delete person(s) from question 1 by marking the "Cancel" box. Correct the POP count in question S5 on the front cover.
- No – Continue with H1.

**HOUSING**

**H1. Is this (house/apartment/mobile home) —**

- Owned by someone in this household with a mortgage or loan,
- Owned by someone in this household free and clear (without a mortgage or loan),
- Rented for cash rent, or
- Occupied without payment of cash rent?

**H2. If address label includes a Map Spot number, ask — What is the mailing address of this unit?**

House number  Street name, Rural route and box, or PO box

Apartment number  City  State  ZIP Code

**RESPONDENT INFORMATION**

**R1. Enter respondent's name.**

First Name

Last Name

**R2. In case we need to contact you, what is your telephone number and the best time to call?**

Area code  Telephone number

Day  Evening  Either

**R3. Respondent —**

- Lived here on April 1, 2000
- Moved in after April 1, 2000 (Refer to Card K)
- Is neighbor or other

**INTERVIEW SUMMARY**

**A. Status on April 1, 2000**

- 1 = Occupied
- 2 = Occupied – Continuation
- 3 = Vacant – Regular
- 4 = Vacant – Usual home elsewhere
- 5 = Demolished/ Burned out
- 6 = Cannot locate
- 7 = Duplicate
- 8 = Nonresidential
- 9 = Other (open to elements, condemned, under construction)

**B. POP on April 1, 2000**

- 01–97 = Total persons
- 00 = Vacant
- 98 = Delete
- 99 = POP unknown

**C. VACANT — Which category best described this vacant unit as of April 1, 2000?**

- For rent
- For sale only
- Rented or sold, not occupied
- For seasonal, recreational, or occasional use
- For migrant workers
- Other vacant

<input type="checkbox"/> D. SP	<input type="checkbox"/> E. UHE	<input type="checkbox"/> F. MOV	<input type="checkbox"/> G. PI
<input type="checkbox"/> H. REF	<input type="checkbox"/> I. REP	<input type="checkbox"/> J. CO	<input type="checkbox"/> K. TC
<input type="checkbox"/> L. JIC1	<input type="checkbox"/> M. JIC2	<input type="checkbox"/> N. JIC3	<input type="checkbox"/> O. JIC4



## **Appendix B: Decennial Master Address File (DMAF) Variable Definitions**

**LCO Local Census Office Code**

**ST Collection FIPS State Code**

**COU Collection FIPS County Code**

**TRACT Nonresponse Followup Tract**

**MAFID MAF and DMAF ID**

characters 1-2 = state code when the MAF ID was assigned  
characters 3-5 = county code when the MAF ID was assigned  
characters 6-12 = control ID

**TEA Type of Enumeration Area**

1 = Mailout Mailback  
2 = Update Leave  
3 = List Enumerate  
4 = Remote List Enumerate  
5 = Rural Update Enumerate  
6 = Military in Update Leave Area  
7 = Urban Update Leave  
8 = Urban Update Enumerate  
9 = Update Leave (converted from TEA 1)

**GQFLG Group Quarters Housing Unit Flag**

0 = Housing Unit  
1 = Special Place  
2 = Group Quarters  
3 = GQ Embedded Housing Unit

**ASAM A Priori Sample**

0 = No A Priori Sample (Be Counted or Late Field Add)  
1 = Short Form  
2 = long Form

**CIU Coverage Improvement Followup Universe (CIFU)**

- 0 = Universe not set
- 1 = Not in CIFU
- 2 = In CIFU; vacant or delete housing unit from NRFU
- 3 = In CIFU; new construction
- 4 = In CIFU; adds from Update/Leave and Urban Update/Leave
- 5 = In CIFU; lost Mail return
- 6 = In CIFU; blank mail return
- 7 = In CIFU: Response Mode and Incentive Experiment (RMIE)
- 8 = In CIFU; Feb 2000 or Apr 2000 DSF add
- 9 = In CIFU; Late HU Adds from LUCA appeals

**CID CIFU Check-in Month and Day**

- 0 = No CIFU Check-in
- 0101-1231 = CIFU Check-in Month and Day

**CIS CIFU Status**

(Note that no computer edit had been done to verify consistency between the CIS and CIPOP fields.)

- 0 = Not in universe or No status received
- 1 = Occupied
- 2 = Occupied – Continuation
- 3 = Vacant - Regular
- 4 = Vacant - Usual home elsewhere
- 5 = Demolished
- 6 = Cannot Locate
- 7 = Duplicate
- 8 = Nonresidential
- 9 = Other (open to elements, condemned, under construction)

**CIPOP CIFU POP or Delete**

(Note that no computer edit has been done to verify consistency between the CIS and CIPOP fields.)

- 00 = Vacant or Not in universe
- 01 – 29 = Housing Unit POP
- 98 = Delete
- 99 = POP Unknown

**NRS NRFU Status**

- 0 = Not in universe or No status received
- 1 = Occupied
- 2 = Occupied - Continuation
- 3 = Vacant - Regular
- 4 = Vacant - Usual Home Elsewhere
- 5 = Demolished
- 6 = Cannot Locate
- 7 = Duplicate
- 8 = Nonresidential
- 9 = Other (open to elements, condemned, under construction)

**MAC(17) MAF Action Codes**

- A = Add
- C = Correction
- D = Delete
- M = Block Move
- N = Nonresidential
- U = Uninhabitable
- V = Verify

The 17 Operations are -

- (1) Address Listing
- (2) Block Canvassing
- (3) LUCA 98
- (4) LUCA 98 Field Verification
- (5) LUCA 99 Relisting
- (6) LUCA 98 Appeals
- (7) LUCA 99 Appeals
- (8) Special Place/GQ
- (9) Questionnaire Delivery (UL, UE, UUL, LE, or remote AK)
- (10) Postal Validation Check
- (11) Nonresponse Followup
- (12) Be Counted Verification
- (13) TQA Verification
- (14) Coverage Improvement Followup
- (15) New Construction
- (16) 1990 ACF (A or blank)
- (17) DR - Specific (PALS,TC,TMUC)

## Appendix C: MAF/DMAF/HCUF/HCEF Combo File Variable Definitions

### **MAFID MAF and DMAF ID**

characters 1-2 = state code when the MAF ID was assigned  
characters 3-5 = county code when the MAF ID was assigned  
characters 6-12 = control ID

### **GQ\_HUF Group Quarters/Housing Unit Flag**

0 = Housing Unit  
1 = Special Place  
2 = Group Quarters  
3 = GQ Embedded Housing Unit

### **ADRESTYP Address Type**

*First Character - existence of a city-style address:*

C = Complete if both the house number and street name fields are filled  
I = Incomplete if only the street name field is filled  
N = Nonexistent if street name is blank

*Second Character - existence of a rural route address:*

C = Complete if both the rural route descriptor and rural route ID are filled  
I = Incomplete if only one of the two fields is filled  
N = Nonexistent if both fields are blank

*Third Character - existence of a P.O. Box address:*

C = Complete if both the P.O. Box descriptor and P.O. Box ID are filled  
I = Incomplete if only one of the fields are blank  
N = Nonexistent if both fields are blank

*Fourth Character - existence of a location description:*

Y = Filled if the location description field is filled  
N = Blank if the field is blank

### **DLSPECAF Delivery Specific Address Flag**

Y = Valid Address for this Delivery  
N = Not a Valid Address for this Delivery

### **CIFUAC Coverage Improvement Followup Action Code**

A = Add  
D = Delete  
N = Non-Residential

**TEA Type of Enumeration Area**

- 1 = Mailout Mailback
- 2 = Update Leave
- 3 = List Enumerate
- 4 = Remote List Enumerate
- 5 = Rural Update Enumerate
- 6 = Military in Update Leave Area
- 7 = Urban Update Leave
- 8 = Urban Update Enumerate
- 9 = Update Leave (converted from TEA 1)

## Appendix D: Decennial Response File - Stage 2 (DRF2) Variable Definitions

### **RST Collection FIPS State Code**

#### **RUID Unit ID Number (DMAF)**

characters 1-2 = state (when MAF ID was assigned)

characters 3-5 = county

characters 6-12 = sequence ID

#### **RRT Record Type**

2 = Return-level record for short form in housing unit

3 = Return-level record for long form in housing unit

#### **RFT Form Type (DRF2)**

1 = D-1 (Short Form MR)

2 = D-2 (Long Form MR)

3 = D-1(UL) (Short Form MR)

4 = D-2(UL) (Long Form MR)

5 = D-1(E) (Short Form EQ)

6 = D-2(E) (Long Form EQ)

7 = D-10 (Be Counted)

8 = (not used)

9 = D-15A (ICQ, Short)

10 = D-15B (ICQ, Long)

11 = D-20A (ICR, Short)

12 = D-20B (ICR, Long)

13 = (not used)

14 = D-21 (MCR)

15 = (not used)

16 = D-23 (SCR)

17 = D-1(E)Supp (Enumerator Supplement, Short)

18 = D-2(E)Supp (Enumerator Supplement, Long)

19 = D-1(E) (ccf) (Short EQ converted to continuation)

20 = D-2(E) (ccf) (Long EQ converted to continuation)

**RSOURCE Source of Return**

- 1 = Not Computed
- 1 = Paper mail back questionnaire from mail out
- 2 = Paper mail back questionnaire from TQA mail out WITH ID
- 3 = Paper mail back questionnaire from TQA mail out with NO ID
- 4 = Paper mail back questionnaire from Update Leave
- 5 = Paper mail back questionnaire from Update Leave ADD
- 6 = Paper mail back questionnaire from Update Leave SUBSTITUTE
- 7 = Paper mail back questionnaire from Urban Update Leave
- 8 = Paper mail back questionnaire from Urban Update Leave ADD
- 9 = Paper mail back questionnaire from Urban Update Leave SUBSTITUTE
- 10 = Paper mail back questionnaire from Request for Foreign Language
- 11 = Paper mail back questionnaire from BCF marked as whole household
- 12 = Paper mail back questionnaire from BCF partial household (i.e., NOT marked as whole household)
- 13 = Paper enumerator questionnaire from List Enumerate
- 14 = Paper enumerator questionnaire from Update Enumerate
- 15 = Paper enumerator questionnaire from Update Enumerate ADD
- 16 = Paper enumerator questionnaire from Update Enumerate SUBSTITUTE
- 17 = Paper enumerator questionnaire from Nonresponse Followup (NRFU)
- 18 = Paper enumerator questionnaire from NRFU ADD
- 19 = Paper enumerator questionnaire from NRFU SUBSTITUTE
- 20 = Paper enumerator questionnaire from NRFU Whole Household Usual Home Elsewhere (WHUHE)
- 21 = Paper enumerator questionnaire from NRFU In-mover
- 22 = Paper enumerator questionnaire from Coverage Improvement Followup (CIFU)
- 23 = Paper enumerator questionnaire from CIFU ADD
- 24 = Paper enumerator questionnaire from CIFU SUBSTITUTE
- 25 = Paper enumerator questionnaire from T-Night
- 26 = Paper questionnaire for UHE from Service-based Enumeration (SBE) (Individual Census Questionnaire (ICQ))
- 27 = Paper questionnaire for UHE from Group Quarters (GQ) enumeration (Individual Census Questionnaire (ICQ))
- 28 = Paper questionnaire for UHE from Military GQ enumeration (Military Census Report (MCR))
- 29 = Paper questionnaire for UHE from Shipboard GQ enumeration (Shipboard Census Report (SCR))
- 30 = Electronic short form from IDC
- 31 = Electronic TQA reverse-CATI short form
- 32 = Electronic TQA reverse-CATI BCF for whole household
- 33 = Electronic TQA reverse-CATI BCF for partial household
- 34 = Electronic Coverage Edit Followup (CEFU) from long or short form
- 35 = Electronic CEFU from BCF for whole household
- 36 = Electronic CEFU from IDC
- 37 = Paper enumerator continuation form - unlinked "orphan"

**RCONT Continuation Form Attached**

-1 = No Response

1 = "Continuation forms attached" box marked

**RCONTN Number of Continuation Forms for this Address**

-1 = No Response

1 = Number of continuation forms attached

**RISSP Interview Summary Item D - SP, Spanish Interview**

**RISPI Interview Summary Item G - PI, Partial Interview**

**RISREF Interview Summary Item H - REF, Refusal**

**RISREP Interview Summary Item I - REP, Replacement Questionnaire**

**RISCO Interview Summary item J - CO, Close Out**

**RHHMEM Respondent Household Member?**

-1 = No Response

1 = Lived here on April 1, 2000 [household member]

2 = Moved in after April 1, 2000

3 = Is neighbor or other

**Appendix E: Hundred percent Census Edited File with the reinstated housing units  
(HCEF\_D') Variable Definitions**

**ST** Collection FIPS State Code

**COU** Collection FIPS County Code

**LCO** Local Census Office

**TRACT** Nonresponse Followup Tract

**HOUSING UNIT RECORD (Record Type 2)**

**RT** Record Type

2 = Housing Unit Record

**MAFID** MAF and DMAF ID

characters 1-2 = state code when the MAF ID was assigned

characters 3-5 = county code when the MAF ID was assigned

characters 6-12 = control ID

**NRU** Nonresponse Followup Universe

0 = Universe not set (The ID was added after NRFU was selected.)

1 = Not in NRFU; data received (This indicates that a form was checked in; it does not guarantee that the form has any data.)

2 = Not in NRFU; but NRD, NRS, NRC and NRPOP will be set by Update/Enumerator or List/Enumerate

3 = In NRFU, Nonresponse

4 = In NRFU, Too late for mailout

**UBSA** Units at Basic Street Address (BSA)

1 = Single unit

2-9999 = Number of units at BSA

**STENURE** "Is this house, apartment, or mobile home--"

0 = Not in universe (vacant)

1 = Owned by you or someone in this household with a mortgage or loan

2 = Owned by you or someone in this household free and clear

3 = Rented for cash rent

4 = Occupied without payment of cash rent

**PERSON RECORD (Record Types 3 and 5)**

**RT Record Type**

- 3 = Housing unit person record
- 5 = Group quarters person record

**PUID Unit ID Number**

- characters 1-2 = state code when the MAF ID was assigned
- characters 3-5 = county code when the MAF ID was assigned
- characters 6-12 = control ID

**QSEX Sex**

- 1 = Male
- 2 = Female

**QAGE Age**

- 000-115 = Age

**QSPANX Hispanic Origin Edit/Allocation Group**

- 1 = Not Hispanic
- 2 = Mexican
- 3 = Puerto Rican
- 4 = Cuban
- 5 = Central American, Dominican  
Latin/South American
- 7 = Other Hispanic

**QRACEX Race Edit/Allocation Group**

- 1 = White
- 2 = Black, African American, or Negro
- 3 = American Indian or Alaska Native
- 4 = Asian
- 5 = Native Hawaiian or Other Pacific Islander
- 6 = Some Other Race

**Appendix F: Coverage Improvement Followup (CIFU) Workload by Source and by State**

State	Vacant	Delete	New Const	UL & UU/L	Lost	Blank	RMIE	DSF	LUCA	Hialeah	Misc
with PR	3,927,175	2,606,520	371,812	775,055	65,281	475,194	5,285	547,383	17,178	61,547	1,874
w/o PR	3,834,363	2,572,395	371,812	717,882	65,086	474,005	5,285	547,383	17,178	61,547	1,873
AL	111,808	59,590	9,211	26,073	339	7,002	82	6,169	32	0	38
AK	8,170	6,535	860	4,549	38	586	11	474	13	0	1
AZ	96,584	51,001	12,004	20,756	867	12,346	103	5,772	6	0	0
AR	66,732	33,994	2,729	22,119	267	4,780	36	1,558	1,256	0	2
CA	289,640	246,721	31,160	21,334	3,722	48,197	610	21,757	6	0	181
CO	45,396	36,145	7,475	18,554	394	7,389	55	4,481	6,067	0	8
CT	29,937	26,432	1,840	1,753	1,393	5,081	68	3,611	5	0	9
DE	14,697	8,952	198	2,177	365	2,551	12	1,074	0	0	0
DC	10,333	6,877	527	2	260	672	10	142	0	0	0
FL	200,388	94,277	31,813	25,460	1,903	36,528	443	30,581	60	61,547	404
GA	75,460	59,405	15,748	32,712	754	15,350	146	15,618	646	0	20
HI	19,279	18,058	460	3,029	168	1,337	18	840	0	0	13
ID	14,599	11,561	4,588	3,950	129	2,415	16	2,502	0	0	14
IL	136,529	125,869	26,690	7,784	3,562	14,288	313	198,621	579	0	53
IN	67,157	46,457	5,170	4,959	977	9,230	130	14,733	0	0	2
IA	33,098	15,634	2,725	7,672	299	6,639	39	1,947	0	0	5
KS	41,235	17,013	3,220	5,982	197	5,046	35	2,327	75	0	1
KY	79,302	38,103	5,367	20,582	367	6,120	54	3,931	1	0	16
LA	90,702	62,550	7,678	19,534	291	7,348	84	6,381	1,213	0	58
ME	17,573	12,701	1,001	9,786	682	2,189	11	651	0	0	0
MD	54,260	37,959	4,911	4,549	2,050	8,076	127	5,828	0	0	9
MA	52,219	62,923	2,877	1,847	2,883	9,263	127	5,335	13	0	127
MI	133,309	75,264	12,374	21,559	4,149	27,528	181	9,761	4	0	190
MN	37,521	31,436	4,616	13,672	409	8,725	55	4,488	4	0	17
MS	56,997	30,811	973	15,015	191	4,163	58	5,644	40	0	0
MO	107,436	46,902	3,873	21,617	547	9,825	90	4,931	16	0	0
MT	13,336	7,354	549	8,367	51	1,985	4	278	0	0	14
NE	16,754	6,208	1,169	3,543	132	2,768	16	1,673	0	0	0
NV	28,473	7,473	6,704	5,655	221	2,441	27	1,847	234	0	0
NH	10,639	12,431	193	5,488	909	2,688	13	1,036	0	0	0
NJ	93,917	84,752	5,343	2,755	3,101	11,488	191	7,713	50	0	9
NM	28,305	16,194	51	16,532	151	3,413	33	1,984	0	0	2
NY	247,963	359,775	16,087	26,699	9,642	19,553	443	53,034	695	0	183
NC	165,719	88,285	18,720	55,791	591	18,232	122	12,007	14	0	61
ND	9,303	3,729	516	2,384	55	1,276	4	328	0	0	0
OH	126,248	60,769	14,004	9,918	5,413	20,884	225	10,565	4,809	0	104
OK	93,220	29,542	1,342	20,047	367	4,673	60	3,222	0	0	24
OR	40,431	28,285	9,685	6,366	365	8,270	61	5,807	573	0	11
PA	167,419	117,048	6,243	17,775	5,712	23,164	234	15,569	0	0	71
RI	15,454	12,481	377	1,243	503	2,085	17	2,025	0	0	0
SC	94,983	69,957	5,935	28,042	496	7,682	89	5,484	0	0	14
SD	7,903	3,050	348	3,048	4,132	1,579	7	388	0	0	0
TN	117,486	64,946	24,045	26,661	368	9,550	105	7,887	347	0	3
TX	389,977	174,724	33,596	73,606	1,712	22,511	381	31,936	393	0	121
UT	16,076	11,951	4,832	6,216	272	2,612	25	2,264	0	0	0
VT	7,485	7,451	147	5,397	317	1,080	3	855	0	0	0
VA	100,648	41,973	8,713	22,639	539	11,822	84	5,614	6	0	13
WA	66,180	53,726	4,498	7,225	669	11,098	131	10,400	0	0	30
WV	42,419	14,719	250	14,309	1,055	2,673	12	329	0	0	37
WI	39,879	29,065	8,216	9,096	1,076	16,981	78	5,678	21	0	8
WY	3,785	3,337	161	2,054	34	823	6	303	0	0	0
PR	92,812	34,125	0	57,173	195	1,189	0	0	0	0	1

## Appendix G: Coverage Improvement Followup (CIFU) Housing Unit Status by State

State	Total		Occupied	Vacant	Delete	Undetermined
	#	%				
Total with PR	8,854,304	100.0	2,375,668	3,846,067	2,632,027	542
Total w/o PR	8,668,809	97.9	2,316,123	3,751,010	2,601,134	542
AL	220,344	2.5	63,020	108,234	49,090	0
AK	21,237	0.2	5,202	9,173	6,862	0
AZ	199,439	2.3	50,302	101,704	47,433	0
AR	133,473	1.5	32,923	68,675	31,875	0
CA	663,328	7.5	167,502	255,118	240,708	0
CO	125,964	1.4	34,392	48,933	42,639	0
CT	70,129	0.8	21,541	24,964	23,624	0
DE	30,026	0.3	7,572	15,856	6,597	1
DC	18,823	0.2	5,816	7,548	5,448	11
FL	483,404	5.5	165,906	225,000	92,496	2
GA	215,859	2.4	81,950	79,397	54,512	0
HI	43,202	0.5	9,554	17,249	16,009	390
ID	39,774	0.4	10,257	16,611	12,906	0
IL	514,288	5.8	100,201	112,833	301,254	0
IN	148,815	1.7	46,213	58,520	44,082	0
IA	68,058	0.8	16,146	36,382	15,530	0
KS	75,131	0.8	19,170	39,562	16,399	0
KY	153,843	1.7	42,569	76,338	34,936	0
LA	195,839	2.2	51,059	87,093	57,687	0
ME	44,594	0.5	12,235	21,949	10,410	0
MD	117,769	1.3	42,527	47,251	27,990	1
MA	137,614	1.6	40,377	45,890	51,347	0
MI	284,319	3.2	66,139	147,609	70,571	0
MN	100,943	1.1	25,175	45,916	29,852	0
MS	113,892	1.3	36,197	53,806	23,889	0
MO	195,237	2.2	43,480	108,712	43,045	0
MT	31,938	0.4	6,785	17,393	7,760	0
NE	32,263	0.4	7,826	17,482	6,955	0
NV	53,075	0.6	15,055	26,156	11,864	0
NH	33,397	0.4	10,620	12,796	9,981	0
NJ	209,319	2.4	59,128	83,721	66,470	0
NM	66,665	0.8	20,668	29,285	16,712	0
NY	734,074	8.3	165,302	218,562	350,210	0
NC	359,542	4.1	99,461	171,446	88,604	31
ND	17,595	0.2	2,958	10,205	4,432	0
OH	252,939	2.9	71,674	119,957	61,308	0
OK	152,497	1.7	34,427	91,062	27,008	0
OR	99,854	1.1	25,847	40,822	33,185	0
PA	353,235	4.0	92,626	154,925	105,679	5
RI	34,185	0.4	9,223	14,566	10,396	0
SC	212,682	2.4	57,370	98,849	56,463	0
SD	20,455	0.2	7,414	9,531	3,510	0
TN	251,398	2.8	66,740	115,114	69,544	0
TX	728,957	8.2	203,662	366,510	158,768	17
UT	44,248	0.5	11,897	17,761	14,590	0
VT	22,735	0.3	6,357	9,433	6,945	0
VA	192,051	2.2	50,382	100,579	41,090	0
WA	153,957	1.7	45,037	62,395	46,457	68
WV	75,803	0.9	16,764	46,224	12,799	16

State	Total		Occupied	Vacant	Delete	Undetermined
	#	%				
WI	110,098	1.2	29,067	51,111	29,920	0
WY	10,503	0.1	2,408	4,802	3,293	0
PR	185,495	2.1	59,545	95,057	30,893	0

Data Source: DMAF

## Appendix H: CIFU Enumerator Questionnaires Checked-in by Day and by Form Type

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Total	6,950,835	1,902,927	8,853,762	8,853,762	100.00
June 23	19	4	23	23	0.00
June 24	817	136	953	976	0.01
June 25	1,219	227	1,446	2,422	0.03
June 26	1,730	329	2,059	4,481	0.05
June 27	15,049	3,017	18,066	22,547	0.25
June 28	64,422	13,239	77,661	100,208	1.13
June 29	154,088	33,540	187,628	287,836	3.25
June 30	222,195	50,823	273,018	560,854	6.33
July 01	151,236	36,337	187,573	748,427	8.45
July 02	156,098	36,564	192,662	941,089	10.63
July 03	373,029	91,460	464,489	1,405,578	15.88
July 04	53,862	14,164	68,026	1,473,604	16.64
July 05	353,984	91,030	445,014	1,918,618	21.67
July 06	366,544	97,590	464,134	2,382,752	26.91
July 07	431,420	118,878	550,298	2,933,050	33.13
July 08	266,567	76,794	343,361	3,276,411	37.01
July 09	204,905	56,785	261,690	3,538,101	39.96
July 10	462,299	128,975	591,274	4,129,375	46.64
July 11	386,452	112,698	499,150	4,628,525	52.28
July 12	375,783	108,241	484,024	5,112,549	57.74
July 13	375,154	106,568	481,722	5,594,271	63.19
July 14	355,300	99,544	454,844	6,049,115	68.32
July 15	185,433	49,864	235,297	6,284,412	70.98
July 16	142,895	37,244	180,139	6,464,551	73.01
July 17	342,256	93,220	435,476	6,900,027	77.93
July 18	276,415	77,077	353,492	7,253,519	81.93
July 19	240,222	68,286	308,508	7,562,027	85.41
July 20	215,415	61,959	277,374	7,839,401	88.54
July 21	167,478	49,471	216,949	8,056,350	90.99
July 22	86,338	25,689	112,027	8,168,377	92.26
July 23	56,379	17,304	73,683	8,242,060	93.09
July 24	106,427	35,994	142,421	8,384,481	94.70
July 25	79,046	26,484	105,530	8,490,011	95.89
July 26	55,451	19,440	74,891	8,564,902	96.74
July 27	42,947	15,907	58,854	8,623,756	97.40
July 28	26,267	9,508	35,775	8,659,531	97.81
July 29	9,859	3,445	13,304	8,672,835	97.96
July 30	10,361	3,343	13,704	8,686,539	98.11
July 31	12,558	3,890	16,448	8,702,987	98.30
Aug 01	15,490	3,684	19,174	8,722,161	98.51
Aug 02	21,489	4,265	25,754	8,747,915	98.80
Aug 03	16,085	3,199	19,284	8,767,199	99.02
Aug 04	4,385	1,186	5,571	8,772,770	99.09
Aug 05	2,749	587	3,336	8,776,106	99.12
Aug 06	1,779	390	2,169	8,778,275	99.15

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Aug 07	4,498	915	5,413	8,783,688	99.21
Aug 08	4,254	927	5,181	8,788,869	99.27
Aug 09	4,514	1,012	5,526	8,794,395	99.33
Aug 10	4,734	1,003	5,737	8,800,132	99.39
Aug 11	3,736	837	4,573	8,804,705	99.45
Aug 12	3,490	822	4,312	8,809,017	99.49
Aug 13	4,263	960	5,223	8,814,240	99.55
Aug 14	4,509	1,114	5,623	8,819,863	99.62
Aug 15	5,588	1,333	6,921	8,826,784	99.70
Aug 16	5,321	1,274	6,595	8,833,379	99.77
Aug 17	5,773	1,374	7,147	8,840,526	99.85
Aug 18	3,810	938	4,748	8,845,274	99.90
Aug 19	2,378	700	3,078	8,848,352	99.94
Aug 20	1,081	330	1,411	8,849,763	99.95
Aug 21	1,691	400	2,091	8,851,854	99.98
Aug 22	869	402	1,271	8,853,125	99.99
Aug 23	390	196	586	8,853,711	100.00
Aug 24	40	11	51	8,853,762	100.00

Data Source: DMAF

### Appendix I: CIFU Proxy Interviews Checked-in by Day and by Form Type

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Total	3,845,464	1,067,022	4,912,486	4,912,486	100.00
June 23	3	1	4	4	0.00
June 24	387	49	436	440	0.01
June 25	634	107	741	1,181	0.02
June 26	835	151	986	2,167	0.04
June 27	7,239	1,390	8,629	10,796	0.22
June 28	27,139	5,751	32,890	43,686	0.89
June 29	68,370	15,812	84,182	127,868	2.60
June 30	111,960	26,052	138,012	265,880	5.41
July 01	81,435	19,957	101,392	367,272	7.48
July 02	83,596	19,960	103,556	470,828	9.58
July 03	204,025	50,248	254,273	725,101	14.76
July 04	33,759	9,020	42,779	767,880	15.63
July 05	198,254	50,892	249,146	1,017,026	20.70
July 06	207,979	55,435	263,414	1,280,440	26.07
July 07	245,408	68,072	313,480	1,593,920	32.45
July 08	154,760	44,854	199,614	1,793,534	36.51
July 09	116,855	32,816	149,671	1,943,205	39.56
July 10	247,994	71,335	319,329	2,262,534	46.06
July 11	220,838	64,733	285,571	2,548,105	51.87
July 12	214,809	62,220	277,029	2,825,134	57.51
July 13	210,615	60,658	271,273	3,096,407	63.03
July 14	200,386	56,424	256,810	3,353,217	68.26
July 15	104,402	28,126	132,528	3,485,745	70.96
July 16	77,956	20,171	98,127	3,583,872	72.95
July 17	186,681	51,459	238,140	3,822,012	77.80
July 18	153,990	43,460	197,450	4,019,462	81.82
July 19	135,379	38,455	173,834	4,193,296	85.36
July 20	125,058	36,008	161,066	4,354,362	88.64
July 21	97,919	28,854	126,773	4,481,135	91.22
July 22	49,860	14,933	64,793	4,545,928	92.54
July 23	33,204	10,019	43,223	4,589,151	93.42
July 24	63,022	21,556	84,578	4,673,729	95.14
July 25	49,706	15,927	65,633	4,739,362	96.48
July 26	35,631	11,915	47,546	4,786,908	97.44
July 27	27,360	9,953	37,313	4,824,221	98.20
July 28	17,055	5,760	22,815	4,847,036	98.67
July 29	6,116	2,038	8,154	4,855,190	98.83
July 30	5,616	1,942	7,558	4,862,748	98.99
July 31	6,383	2,095	8,478	4,871,226	99.16
Aug 01	3,523	1,222	4,745	4,875,971	99.26
Aug 02	2,553	821	3,374	4,879,345	99.33
Aug 03	2,348	621	2,969	4,882,314	99.39
Aug 04	1,622	501	2,123	4,884,437	99.43

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Aug 05	793	196	989	4,885,426	99.45
Aug 06	356	76	432	4,885,858	99.46
Aug 07	1,215	250	1,465	4,887,323	99.49
Aug 08	1,246	275	1,521	4,888,844	99.52
Aug 09	1,583	313	1,896	4,890,740	99.56
Aug 10	1,500	252	1,752	4,892,492	99.59
Aug 11	1,118	236	1,354	4,893,846	99.62
Aug 12	1,207	257	1,464	4,895,310	99.65
Aug 13	1,376	303	1,679	4,896,989	99.68
Aug 14	1,388	331	1,719	4,898,708	99.72
Aug 15	1,882	472	2,354	4,901,062	99.77
Aug 16	1,924	471	2,395	4,903,457	99.82
Aug 17	2,206	548	2,754	4,906,211	99.87
Aug 18	1,566	343	1,909	4,908,120	99.91
Aug 19	1,050	280	1,330	4,909,450	99.94
Aug 20	486	136	622	4,910,072	99.95
Aug 21	1,095	187	1,282	4,911,354	99.98
Aug 22	580	220	800	4,912,154	99.99
Aug 23	202	94	296	4,912,450	100.00
Aug 24	27	9	36	4,912,486	100.00

Data Source: DRF2

### Appendix J: CIFU Partial Interviews Checked-in by Day and by Form Type

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Total	201,072	150,270	351,342	351,342	100.00
June 24	2	0	2	2	0.00
June 25	10	2	12	14	0.00
June 26	15	6	21	35	0.01
June 27	253	161	414	449	0.13
June 28	1,207	665	1,872	2,321	0.66
June 29	2,821	1,729	4,550	6,871	1.96
June 30	4,437	3,001	7,438	14,309	4.07
July 01	3,715	2,495	6,210	20,519	5.84
July 02	3,566	2,202	5,768	26,287	7.48
July 03	7,928	5,661	13,589	39,876	11.35
July 04	1,213	827	2,040	41,916	11.93
July 05	8,737	6,086	14,823	56,739	16.15
July 06	9,569	6,767	16,336	73,075	20.80
July 07	11,286	8,377	19,663	92,738	26.40
July 08	7,696	5,721	13,417	106,155	30.21
July 09	5,987	4,068	10,055	116,210	33.08
July 10	12,144	9,390	21,534	137,744	39.21
July 11	10,977	8,849	19,826	157,570	44.85
July 12	10,425	8,758	19,183	176,753	50.31
July 13	10,570	8,701	19,271	196,024	55.79
July 14	10,235	8,344	18,579	214,603	61.08
July 15	5,294	4,117	9,411	224,014	63.76
July 16	3,957	2,986	6,943	230,957	65.74
July 17	9,023	7,305	16,328	247,285	70.38
July 18	8,568	6,387	14,955	262,240	74.64
July 19	8,135	6,006	14,141	276,381	78.66
July 20	8,177	5,882	14,059	290,440	82.67
July 21	6,931	4,835	11,766	302,206	86.01
July 22	3,625	2,663	6,288	308,494	87.80
July 23	2,812	1,889	4,701	313,195	89.14
July 24	4,685	3,554	8,239	321,434	91.49
July 25	3,900	2,839	6,739	328,173	93.41
July 26	2,334	2,033	4,367	332,540	94.65
July 27	1,791	1,670	3,461	336,001	95.63
July 28	1,837	1,231	3,068	339,069	96.51
July 29	636	471	1,107	340,176	96.82
July 30	452	481	933	341,109	97.09
July 31	697	524	1,221	342,330	97.43
Aug 01	365	343	708	343,038	97.64
Aug 02	222	208	430	343,468	97.76
Aug 03	319	196	515	343,983	97.91
Aug 04	261	183	444	344,427	98.03
Aug 05	145	88	233	344,660	98.10
Aug 06	51	50	101	344,761	98.13

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Aug 07	250	117	367	345,128	98.23
Aug 08	217	114	331	345,459	98.33
Aug 09	270	143	413	345,872	98.44
Aug 10	210	138	348	346,220	98.54
Aug 11	155	106	261	346,481	98.62
Aug 12	169	103	272	346,753	98.69
Aug 13	241	134	375	347,128	98.80
Aug 14	259	161	420	347,548	98.92
Aug 15	312	196	508	348,056	99.06
Aug 16	321	238	559	348,615	99.22
Aug 17	322	227	549	349,164	99.38
Aug 18	304	204	508	349,672	99.52
Aug 19	280	189	469	350,141	99.66
Aug 20	166	97	263	350,404	99.73
Aug 21	268	105	373	350,777	99.84
Aug 22	248	182	430	351,207	99.96
Aug 23	69	61	130	351,337	100.00
Aug 24	1	4	5	351,342	100.00

Data Source: DRF2

### Appendix K: CIFU Refusals Checked-in by Day and by Form Type

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Total	55595	38208	93803	93803	100.00
June 25	1	0	1	1	0.00
June 26	5	5	10	11	0.01
June 27	67	34	101	112	0.12
June 28	262	181	443	555	0.59
June 29	626	414	1040	1595	1.70
June 30	1154	710	1864	3459	3.69
July 01	1150	693	1843	5302	5.65
July 02	1018	628	1646	6948	7.41
July 03	2327	1396	3723	10671	11.38
July 04	272	164	436	11107	11.84
July 05	2593	1706	4299	15406	16.42
July 06	2715	1843	4558	19964	21.28
July 07	3049	2088	5137	25101	26.76
July 08	2185	1493	3678	28779	30.68
July 09	1448	1028	2476	31255	33.32
July 10	3926	2703	6629	37884	40.39
July 11	3124	2263	5387	43271	46.13
July 12	3521	2424	5945	49216	52.47
July 13	3551	2300	5851	55067	58.70
July 14	3161	2131	5292	60359	64.35
July 15	1445	1082	2527	62886	67.04
July 16	940	641	1581	64467	68.73
July 17	2932	2043	4975	69442	74.03
July 18	2141	1507	3648	73090	77.92
July 19	2271	1443	3714	76804	81.88
July 20	1966	1400	3366	80170	85.47
July 21	1719	1202	2921	83091	88.58
July 22	838	559	1397	84488	90.07
July 23	642	444	1086	85574	91.23
July 24	1052	871	1923	87497	93.28
July 25	881	651	1532	89029	94.91
July 26	584	585	1169	90198	96.16
July 27	449	398	847	91045	97.06
July 28	290	278	568	91613	97.67
July 29	154	125	279	91892	97.96
July 30	90	105	195	92087	98.17
July 31	104	105	209	92296	98.39
Aug 01	45	48	93	92389	98.49
Aug 02	35	45	80	92469	98.58
Aug 03	29	22	51	92520	98.63
Aug 04	28	26	54	92574	98.69
Aug 05	10	6	16	92590	98.71
Aug 06	2	4	6	92596	98.71
Aug 07	6	3	9	92605	98.72

Date	Form Type		Total Forms	Cumulative	
	Short Forms	Long Forms		Total	Percent
Aug 08	13	16	29	92634	98.75
Aug 09	26	31	57	92691	98.81
Aug 10	22	23	45	92736	98.86
Aug 11	54	21	75	92811	98.94
Aug 12	7	5	12	92823	98.96
Aug 13	20	12	32	92855	98.99
Aug 14	48	38	86	92941	99.08
Aug 15	81	46	127	93068	99.22
Aug 16	77	51	128	93196	99.35
Aug 17	120	44	164	93360	99.53
Aug 18	100	32	132	93492	99.67
Aug 19	68	29	97	93589	99.77
Aug 20	56	18	74	93663	99.85
Aug 21	33	14	47	93710	99.90
Aug 22	47	19	66	93776	99.97
Aug 23	14	11	25	93801	100.00
Aug 24	1	1	2	93803	100.00

Data Source: DRF2

**Appendix L: CIFU Added and Deleted Addresses by State**

State	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
Total with PR	8,854,304	100.0	10,465	100.0	2,627,741	100.0
Total w/o PR	8,668,809	97.9	10,465	100.0	2,596,848	98.8
Alabama	220,344	2.5	161	1.5	49,057	1.9
Alaska	21,237	0.2	9	0.1	6,860	0.3
Arizona	199,439	2.3	206	2.0	47,361	1.8
Arkansas	133,473	1.5	50	0.5	31,865	1.2
California	663,328	7.5	766	7.3	240,462	9.2
Colorado	125,964	1.4	47	0.4	42,622	1.6
Connecticut	70,129	0.8	46	0.4	23,602	0.9
Delaware	30,026	0.3	19	0.2	6,595	0.3
DC	18,823	0.2	15	0.1	5,445	0.2
Florida	483,404	5.5	1170	11.2	92,078	3.5
Georgia	215,859	2.4	267	2.6	54,417	2.1
Hawaii	43,202	0.5	145	1.4	15,897	0.6
Idaho	39,774	0.4	157	1.5	12,824	0.5
Illinois	514,288	5.8	842	8.0	300,946	11.5
Indiana	148,815	1.7	745	7.1	43,500	1.7
Iowa	68,058	0.8	39	0.4	15,513	0.6
Kansas	75,131	0.8	56	0.5	16,376	0.6
Kentucky	153,843	1.7	62	0.6	34,920	1.3
Louisiana	195,839	2.2	126	1.2	57,638	2.2
Maine	44,594	0.5	9	0.1	10,409	0.4
Maryland	117,769	1.3	206	2.0	27,915	1.1
Massachusetts	137,614	1.6	127	1.2	51,292	2.0
Michigan	284,319	3.2	461	4.4	70,405	2.7
Minnesota	100,943	1.1	133	1.3	29,787	1.1
Mississippi	113,892	1.3	88	0.8	23,866	0.9
Missouri	195,237	2.2	249	2.4	42,826	1.6
Montana	31,938	0.4	4	0.0	7,758	0.3
Nebraska	32,263	0.4	7	0.1	6,954	0.3
Nevada	53,075	0.6	166	1.6	11,748	0.4
New Hampshire	33,397	0.4	46	0.4	9,954	0.4
New Jersey	209,319	2.4	190	1.8	66,397	2.5
New Mexico	66,665	0.8	61	0.6	16,687	0.6
New York	734,074	8.3	331	3.2	350,102	13.3
North Carolina	359,542	4.1	362	3.5	88,445	3.4
North Dakota	17,595	0.2	72	0.7	4,361	0.2
Ohio	252,939	2.9	121	1.2	61,263	2.3
Oklahoma	152,497	1.7	51	0.5	26,983	1.0
Oregon	99,854	1.1	167	1.6	33,103	1.3
Pennsylvania	353,235	4.0	524	5.0	105,495	4.0
Rhode Island	34,185	0.4	41	0.4	10,377	0.4
South Carolina	212,682	2.4	183	1.7	56,405	2.1
South Dakota	20,455	0.2	11	0.1	3,501	0.1
Tennessee	251,398	2.8	264	2.5	69,448	2.6
Texas	728,957	8.2	945	9.0	158,563	6.0

State	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
Utah	44,248	0.5	47	0.4	14,568	0.6
Vermont	22,735	0.3	3	0.0	6,944	0.3
Virginia	192,051	2.2	82	0.8	41,058	1.6
Washington	153,957	1.7	306	2.9	46,389	1.8
West Virginia	75,803	0.9	10	0.1	12,796	0.5
Wisconsin	110,098	1.2	269	2.6	29,779	1.1
Wyoming	10,503	0.1	1	0.0	3,292	0.1
Puerto Rico	185,495	2.1	0	0.0	30,893	1.2

Data Source: DMAF and Combo File

An entry with 0.0 percent indicates the value is less than one-tenth of a percent.

**Appendix M: CIFU Added and Deleted Addresses by Address Type for the MO/MB Areas**

Address Type	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
<b>Total</b>	6,037,885	100.0	8,898	100.0	2,108,616	100.0
› <b>Complete City-Style</b>	5,887,930	97.5	8,898	100.0	2,021,181	95.9
with location description	68,860	1.1	77	0.9	48,537	2.3
without location description	5,819,070	96.4	8,821	99.1	1,972,644	93.6
› <b>Complete Rural Route</b>	2,245	0.0	0	0.0	799	0.0
with location description	2,015	0.0	0	0.0	737	0.0
without location description	230	0.0	0	0.0	62	0.0
› <b>Complete PO Box</b>	2,379	0.0	0	0.0	1,287	0.1
with location description	1,681	0.0	0	0.0	814	0.0
without location description	698	0.0	0	0.0	473	0.0
› <b>Incomplete Address</b>	143,451	2.4	0	0.0	83,724	4.0
with location description	138,268	2.3	0	0.0	79,300	3.8
without location description	5,183	0.1	0	0.0	4,424	0.2
› <b>No Address Information</b>	1,880	0.0	0	0.0	1,625	0.1
with location description	1,620	0.0	0	0.0	1,387	0.1
without location description	260	0.0	0	0.0	238	0.0

Data Source: Combo File

**Appendix N: CIFU Added and Deleted Addresses by Address Type for the U/L Areas**

Address Type	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
<b>Total</b>	2,771,176	100.0	1,527	100.0	496,862	100.0
› <b>Complete City-Style</b>	1,535,347	55.4	1,527	100.0	247,112	49.7
with location description	198,075	7.1	151	9.9	38,676	7.8
without location description	1,337,272	48.3	1,376	90.1	208,436	42.0
› <b>Complete Rural Route</b>	156,755	5.7	0	0.0	23,187	4.7
with location description	152,443	5.5	0	0.0	22,270	4.5
without location description	4,312	0.2	0	0.0	917	0.2
› <b>Complete PO Box</b>	75,892	2.7	0	0.0	12,977	2.6
with location description	72,121	2.6	0	0.0	12,107	2.4
without location description	3,771	0.1	0	0.0	870	0.2
› <b>Incomplete Address</b>	57,278	2.1	0	0.0	13,956	2.8
with location description	22,829	0.8	0	0.0	5,045	1.0
without location description	34,449	1.2	0	0.0	8,911	1.8
› <b>No Address Information</b>	945,904	34.1	0	0.0	199,630	40.2
with location description	943,467	34.0	0	0.0	198,649	40.0
without location description	2,437	0.1	0	0.0	981	0.2

Data Source: Combo File

**Appendix O: CIFU Added and Deleted Addresses by Address Type for the UU/L Areas**

Address Type	CIFU Universe		Added Addresses		Deleted Addresses	
	Number	Percent	Number	Percent	Number	Percent
<b>Total</b>	45,243	100.0	40	100.0	22,263	100.0
› <b>Complete City-Style</b>	44,369	98.1	40	100.0	21,860	98.2
with location description	234	0.5	0	0.0	165	0.7
without location description	44,135	97.6	40	100.0	21,695	97.4
› <b>Complete Rural Route</b>	1	0.0	0	0.0	1	0.0
with location description	1	0.0	0	0.0	1	0.0
without location description	0	0.0	0	0.0	0	0.0
› <b>Complete PO Box</b>	7	0.0	0	0.0	0	0.0
with location description	7	0.0	0	0.0	0	0.0
without location description	0	0.0	0	0.0	0	0.0
› <b>Incomplete Address</b>	848	1.9	0	0.0	388	1.7
with location description	367	0.8	0	0.0	167	0.8
without location description	481	1.1	0	0.0	221	1.0
› <b>No Address Information</b>	18	0.0	0	0.0	14	0.1
with location description	8	0.0	0	0.0	6	0.0
without location description	10	0.0	0	0.0	8	0.0

Data Source: Combo File